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GROUND SWELL AND TIDES AMONG THE WEST INDIA AND VIRGIN ISLANDS.

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THE influx of the tide from the sea, near the mouths of large rivers, counteracts their current, and by forcing back their waters occasions a swell which has been called the bore of mascaret. Where the river near the mouth is almost level with the sea, the collision of the contending waters is sometimes tremendous, and causes a wave of twelve or fifteen feet in height. The Ganges, according to Major Rennell, but more so the rivers on the north-eastern coast of South America, have this bore; and Romme observes, "that during three days at the equinoxes, there is a considerable swell at the mouth of the Amazon, which causes such a noise, that it may be heard at the distance of two leagues;"* and in the Tumry channel, river Aourary, the sea rises forty feet in less than five minutes, this constituting the whole rise of the tide, as the ebb immediately takes place and runs with great velocity.

Of quite a different nature, but equally dangerous in its effects, is the heavy swell that may be observed occasionally along the northern coasts of some of the West India islands; and which has been called by the inhabitants the

*It has been poetically said, that the Genius of the river and the God of the ocean contend for the empire of the waters.

"Ground," or, in Jamaica, the "North Sea." This rises, rages, and subsides, when the air is calm, when there has been no indication whatever of a previous gale, or even when light airs have for a considerable period preceding come from the southward of east. The waves approach in gentle undulations, but suddenly swell against the shore, and break with the greatest impetuosity. The rise takes place sometimes gradually, but more frequently quite unexpectedly, the waves reaching an uncommon height.

A heavy ground sea is distinguished by something grand and sublime. The sea approaches in undulating masses, which suddenly rise to large ridges, crested with foam, and form billows that burst upon the beach with the greatest impetuosity; the spray flying, where the waves dash against cliffs, often more than a hundred feet high, attended with loud roarings resembling thunder, which subside into a rumbling noise, caused by the nodules and fragments of rock with which the breaker was charged when advancing, which on its retreat roll backwards and are again driven forward by the next surge. Wave then follows upon wave in quick succession, there being only apparently a short interval after the third. The sea for many miles from shore assumes a peculiar aspect, different tints of blue, from the lightest to the darkest, forming a strong contrast with the snowy foam of the breaking waves, when they strike against a hidden rock, or with the white line visible along the whole coast. The eastern Bahamas, the north-eastern coast of Jamaica and St. Domingo, but chiefly Puerto Rico and the Virgin Islands, and in a less degree the northern Caribbee Islands, are subjected to this ground-sea.

The operating cause of this sudden rise of the sea along shore at these places not being visible, and the air being generally calm when it takes place, the inhabitants have ascribed it to submarine earthquakes, the influence of the moon, and many other phenomena. It may be, however, considered as a rule, that whenever the wind gets to the northward of east for a day or two, there will be a ground-sea at the northern side of the islands; and I have formed,

therefore, the opinion, that it is caused by gales in the Atlantic, or on the northern coasts of America. The friction of the wind upon the surface of the water causes little elevations or ridges, which by continuance of the force gradually increases, chiefly when the wind sweeps over a great extent of water. Finding no resistance and having sufficient depth to sink directly down, they proceed with the direction of the wind and remain natural waves, until they meet repercussion from dashing against the shore, when they rise to an elevation much above their natural state. The period when the ground-sea sets in is generally October, and it continues, though, with some intermission, till April and May. Any individual acquainted with the coasts of North America, will be aware that during that time frequent storms prevail, and the circumstance that a northern wind either precedes, sets in with, or follows a ground-sea, and that only the northern sides of the islands are exposed to it, confirms me in my opinion. A glance on a chart of the Atlantic Ocean, proves that Puerto Rico and the Virgin Islands oppose the first resistance to the waves caused by a northern storm on the North American coast, or in the Atlantic, from the fortieth to the sixtieth meridian. The wind accompanying or preceding a ground-sea is generally from the east of north; the waves are, therefore, propelled more or less in a western as well as southern direction, and the Bahamas and even Bermuda may escape, whilst the islands from Barbados to Puerto Rico, but more particularly the latter and the Virgin Islands, receive its first impulse.

One might conclude, it is true, on first consideration, that Jamaica, in consequence of its sheltered situation, would be exempt from a ground sea thus originating; but its north-eastern coast is exposed to the main ocean, though at a distance of 150 leagues from it; and a body of water, driven by means of the prevailing wind through the passage, would be so affected by the gradually diminishing channel and the projecting head-land of Cape Maize and Cape St. Nicholas, as to increase in velocity, and thus finally break on the north-eastern coast of Jamaica, with more violence

than its sheltered situation would lead us to suppose. I must certainly confess, that my opinion has been objected to by many of the inhabitants of the Virgin Islands who rather attribute the phenomenon to causes arising in the bottom of the sea; in which they consider themselves justified by the extent to which a heavy ground-sea breaks up the bottom—the sea to a considerable distance from the shore becoming discolored—and even anchors being removed from their holding-place, and vessels being driven amongst the breakers and dashed to pieces. But the discoloration of sea, to a greater or less distance from the shore, according to depth, is effected likewise during heavy gales, and is due to the action of the waves. The depth to which the moving action of the waves extends has not been properly estimated, in consequence of the difficulty connected with such an estimate, the power of the waves continually varying. Some have considered ninety feet, or fifteen fathoms, the limit to which this disturbing power extends; but this requires confirmation. In the present case, however, the depth near shore is seldom more than from four to fifteen fathoms—in many places shoaling to a few feet—and thus the action of the waves caused by a ground-sea must become apparent; and the moving power of the waves on the bottom will tend to turn up anchors chiefly when the wind unites its powers above with the turbulent character of the sea below.

My opponents in opinion have further adduced, that there are likewise northern gales during the summer months in the Atlantic: but these islands are also occasionally visited by ground-sea during June, July, and August. We may call a ground-sea a temporary current, caused by a severe gale, of longer or shorter duration; and every navigator knows from experience how common these currents are, and that they are more particularly felt along coasts and through channels. Major Rennell, in his "Remarks on the Channel," observes—"It is well known how easily a current may be induced by the action of the wind, and how a strong south-west or north-west, and even a north-east wind, on our own coasts,

raises the tide to an extraordinary height in the English Channel, the river Thames, the east coast of Great Britain, &c., as these winds respectively prevail." Mr Boyle proved, by numerous experiments, that the most violent wind never penetrates deeper than six feet into the water; and, consequently, it can only be elevated six feet from the level of the surface, where there is no impediment, and where several waves are not heaped together by a violent tempest: the utmost elevation of a natural wave is therefore twelve feet.

It has been objected, that if the ground-sea originated with gales in the Atlantic, the whole surface between these islands and the scene where the gale took place would be agitated; and I agree with them, but surely it cannot be supposed that there should be accidental or compound waves the whole distance. We have seen that a natural wave, according to Boyle, can only be elevated twelve feet in deep seas; according to others, twenty feet: and as the originating cause ceased with the gale, and the undulations are afterwards only propelled by previous waves, they must lose in height, and become, at a great distance from the spot of the gale, and where the wind does not sweep over a great extent of water, less perceptible than on coasts where impediments are thrown in their way. The northern wind acts, however, still upon them, and prevents their altogether subsiding; and in consequence of the earth's rotation, they receive a more or less western direction: arriving, therefore, at this archipelago, they find their way obstructed by reefs and shores, are acted upon by repercussion, and by the dashing of several waves together that loud noise is caused which accompanies the heavy swell or ground-sea; and which I have known to continue for a week or two when a northerly wind was at the same time prevailing.

A southern gale will likewise produce a heavy swell on the southern side of these islands; and during the gale of the 30th and 31st of August, 1833, this was felt with great violence on the southern shore. But, generally speaking, neither in force nor duration are these surges to be compared with those of the northern side; the group of the

Virgin Islands being protected in this direction by the Caribbean Islands or by the Columbian coasts, and not exposed to the swell of the main ocean.

I observed previously, that the Virgin Islands and the northern shore of Porto-Rico are most exposed to a ground-sea; and, indeed, the diversity in the line of the northern coasts along these islands, and their present aspect, prove evidently the strength and battering power of the waves. The seaward front of the small islands Camanoes, Guana Island, Jost VanDyke's, Tobago, Loango, Green Island, and Thatch Kay, as well as the shore at Tortola from Josiah's Bay to Cane-Garden Bay, and the whole northern shore of St Thomas, consists of perpendicular cliffs of mostly unstratified rocks, presenting a front in which the force of the waves has formed cavities, chiefly where the broken wave was driven by local circumstances more in one direction than in another, I have observed several instances where the water, after having finished the vault, has worked its way upwards through the rock until the compressed air found an egress. The noise which is caused by the blast of the compressed air, held between each wave as it rolls into the cave, is considerable, and when heard at a great distance may be compared to the discharge of heavy artillery.

The situations mentioned previously offer scarcely any beach, or, where this is the case, they have been defended by coral reefs, which break the greatest force of the approaching wave, and prevent it from making inroads on the land; nevertheless, a heavy ground-sea will tear up large pieces of coral, and throw them on the beach. It would appear that nature has provided defences wherever the land becomes less precipitous, and protecting cliffs are not opposed to the battering power of the waves, which otherwise would become a continued and powerful agent of destruction. All the bays along the northern shores of Tortola, St. John's, and St. Thomas's, which, through their situation, are exposed to a ground-sea, are thus more or less protected by coral reefs.

Partial shingle beaches are to be met with at the

extreme ends of the bays, where they bound on cliffs, and prove the effect which the breakers have had on the solid gneiss-rock. Ballast Bay offers almost the only example of an entire shingle beach on the northern side; and its position fits it to receive the nodules brought down by the mountain torrents or torn up from the opposite cliffs at Richmond Hill, which consequently appear among the specimens of rock composing this beach*.

In consequence of the ground-sea, weeks sometimes elapse before a boat is able to land in some bays on the northern side Tortola; and planters frequently find it most difficult to ship their produce.

The cultivation of the smaller Kays has been to a great extent, for the same reason given up; and amongst other instances, I remark Great Tobago, the former owner of which narrowly escaped starvation; a heavy ground-sea setting in, and making all communication with the larger islands impossible, while the Kay itself, having only been recently cultivated, had no resources of its own to satisfy the wants of the inhabitants for any length of time. Guana Island labors under the same disadvantages, and all communication is sometimes for weeks interrupted.

The northern shore of Anegada is almost constantly exposed to a heavy swell, but in a severe ground-sea, the waves approach "mountain high," and when drawing near the island, appear as though about to precipitate themselves over the land, which very likely would be the case, were it not for the protection of a continued barricade of coral

* A bay on the southern side of Great Tobago is remarkable for the regularity with which the breakers grind down the angles of such pebbles as are too heavy to be transported, and become now the sport of the surge. Pieces of granite, in which hornblende prevails, receive a perfect elliptical shape, as if they had been formed by the chisel and compasses. I have several specimens in my collection of geological series of these islands which are really beautiful. Jasper, in consequence of its more slaty nature, does not form a spheroid, but its upper surface becomes flat, and it is distinguished by its stripes of different colors, and its perfect smoothness, as if it had been polished.

reefs. The breakers, however, have forced up sand which forms small hillocks on the north-western part of the island, the largest being even forty-feet high; and the parts behind these hillocks have been also thus inundated, a second and even third range of hills being there formed of inferior size, the sand of which is now consolidated and covered by a species of *arundo* and the *suriana maritima*. After these little hillocks have stretched for some miles in an easterly direction, the shore takes a rocky appearance, and instead of sand, detached pieces of limestone and coral are heaped up, reaching often a height of thirty feet and more, forming a protection to the land behind; which otherwise would be scarcely sufficiently defended, as the reef approaches here almost to the shore, and consequently does not break the force of the waves, the velocity of which is the more increased by the coast-line here forming a sharp angle.

There extends from the western end of Anegada, in a south-westerly direction, almost to the eastern end of Jost Van Dyke's, a shallow ground, consisting of transported sand heaped up, perhaps for ages, and which may be considered as the parent of most of the shallows in Duke's Channel.*

The tidal stream, which flows over this bank, and which, during the flood-tide, runs to the south, finding its way obstructed by the island of Tortola, sets along its northern shore almost in a western direction till it flows between the west end of Tortola and Thatch Island, into Drake's Channel; here it sets east, and escapes between St. John's and Norman's Island. The transporting power of the waves, the average velocity of which cannot be considered to be more than two miles in an hour, would be scarcely strong enough to remove quantities of sand and deposit it in other situations: but the waves, during a ground-sea, having once torn up particles of sand and set them afloat, they are easily transported by the tidal stream; and the discoloration of

* I have carefully sounded this bank, but as I do not find it noted on any of the previous charts, I do not know whether it has increased or decreased. It is known by the name of the "Middle Ground;" and its least depth was, in 1831, seven fathoms and a half.

the sea and the different tints o the water, already described, are no where more observable than in the direction of this extensive bank. The sand which thus escapes is transported to a greater or less distance until it is deposited: the check being produced by some projecting point or contracted channel, through which the tidal stream forces its way, or by the counteraction of the respective tides; and thus the foundation for a sand-bank is laid.

I have found several shallows to the northward of Thatch Island and Tortola, which are not in the old charts: whether these banks escaped the surveyors, or whether they have been formed since the late Spanish surveys, can only be left to conjecture. It has been stated, that the ground-sea has its origin between the islands which are subjected to it; but the fact, that a severe ground-sea often rages on the northern shore of Tortola, whilst on the northern side of St. John's there prevails a perfect calm, contradicts this remark, and is another proof that we must look far out at sea for its originating cause. The Island of Tortola protects almost completely the northern side of St. John's, and prevents the waves from having effect. Where St. John's is exposed to the open ocean, as between the two islets, Whistling Bay and Mingo, we find the ground-sea raging again, and the bays protected by coral reefs.

To one who crosses, during a severe ground-sea, from the southern side of Tortola to the northern, where the breadth of the island is but inconsiderable, the strange spectacle is afforded of the sea, which on the southern side is perhaps "as smooth as glass," on the northern shore tossing, foaming, and roaring, as if agitated by a severe gale. The effect is most curious, and if it were not for the warning that is heard long before the cause becomes visible, one might fancy the wand of a magician in play.

The northern coast of Porto Rico is subjected to a ground-sea, of scarcely less force, which, has had the same effect on its coast as at the Virgin Isles. The 'Old English Pilot' observes, that the sea along the north coast of Porto Rico "eats sometimes very ragingly." The force of the

waves that batter against the cliffs on which the Moro stands is amazing; and any observer will agree with me, that the spray is sometimes carried more than a hundred feet high. I was told that, several years ago, a brig, in consequence of carelessness, became here unmanageable, and was soon dashed to pieces against the cliffs, but few of the crew escaping.

In order to arrive at accurate conclusions whether the opinion which I have formed of the originating cause of the ground-sea is correct or not, it would be curious to compare the log-books of vessels crossing the Atlantic when there were heavy ground-swells on the shores of the Virgin Islands; making allowance for the time which must elapse before the effects of a storm can influence the sea along these shores, and also paying regard to the magnitude of the waves, as on that circumstance depends their velocity.

The obstacles opposed to the tidal wave between the Virgin Islands cause great irregularity in its set and velocity; and though coasters reckon upon a windward tide from the moon's rising to her zenith, and upon a leeward tide from her zenith to her setting, no dependence can be placed on this, the tides differing often one or two hours, so that the change from ebb to flood sometimes precedes the rising or setting of the moon, though it more commonly succeeds it. The windward tide, or that which sets to the south and comes from the Atlantic, on running through these islands makes high water, whilst the ebb or lee tide sets to the north-west. The flood tide, very probably, does not extend far south, being there overcome by the currents existing in the Caribbean sea swelled, by the flow of water which issues from the large rivers Orinoco, Essequibo, Amazon &c.; and the northern or lee tide I conceive to be of still more limited extent, being overcome by the general W.N.W. current so soon as it leaves the Virgin Islands.

Through the greater part of the year an almost regular

tide takes place along shore among the Virgin Islands; but it is different in mid-channel, where the flood-tide continues to run south, while the ebb has already commenced to set to the north-westward along shore. As an example, on the western and northern shores of Tortola, the flood acquires its highest level, at full and change, at ten o'clock; and the same takes place fifteen minutes later on the southern side, But at mid-channel, between Tortola and St. John's, it continues to flow to the windward for an hour and a half to two hours longer. The pressure of the ebb-tide appears however, to be of minor force, perhaps from the circumstance that the flood-tide comes from the main ocean, whilst the ebb has not so extensive a range; and, consequently, the difference of the time between the reflux of the tidal stream near the shore and mid-channel is not so considerable as in the former instance, seldom amounting to more than from thirty to forty minutes.

The time during which the flood-stream continues to run to windward in the middle of the channels (*i.e.*, between shore and shore of the different Islands) is not every where the same among the Virgin Isles, but suffers great modifications; and whilst to the east of Mary Point (the northern angle of St. John's) it often amounts to an hour and a half, or two, it is scarcely more than forty-five minutes to the westward of it. Droghers or coasters, acquainted with this fact, when bound to the westward, make short tacks along shore from Mary Point to Pelican Bay, avoiding the shore of Tortola as much as possible, and thereby escaping much of the influence of the north tide; whereas vessels less acquainted, using the whole sea-room afforded by the channel, are much retarded in their progress.

The direction of the tides is also much cut up and altered in force by the winds, and various impediments which present themselves in the form of promontories, narrow passages, reefs, shallows, &c.; and it is only with time and by experience that a navigator may become acquainted with the different sets in the channels and passages.

During the period that I re-surveyed the Virgin Isles, I paid particular attention to this subject, and I must freely confess that it was full of difficulties. The accompanying sketch of the Virgin Islands, on which the different courses of the tides have been represented, will elucidate the following remarks:—

There are four great outflows for the southern or flood-tide, namely,—1. Between the western end of Virgin Gorda and Peter's Island, which space affords passages to the tidal stream entering between Virgin Gorda and the islets to the east of Tortola. The conflux of so many branches creates necessarily an eddy tide, which we find to the east of Scrub Island. The chief mass of the stream directs its course thence westerly to the passage between Salt and Peter's Islands, a branch escaping between Broken Jerusalem and Round Rock.—2. Between Norman's Island and St. John's, The stream to the west of Road Harbor, in Tortola, and to the east of Mary Point, at St. John's, are directed towards this passage, and unite to the north-east of Red Point, at St. John's, one branch flowing thence towards Ram's Head, and the other to the south-east.—3. Between the western end of St. John's and the eastern end of St. Thomas. The southern tide is here of considerable strength, and causes no where between these islands so heavy a swell, the waves becoming often mountains high, and the extent of water over which the eye sweeps offering the aspect of a raging war between wave and wave. After having cleared the passages the stream of the flood tide directs its course towards Frenchman's Cap, or Bird Island, with the exception of a branch which runs towards Reef Bay, in an eastern direction.—4. Between the western end of St. Thomas and Culebre. A branch of this great outflow sets through the passage between the western end of St. Thomas and West Bay, running off towards Brigantine; a stream strikes, however, to the south-east. Having cleared the different passages, the southern tide is now acted upon by the trade-wind, and flows off south-west

until it is turned by the current existing in the Caribbean Sea. I am inclined to think that its whole range does not amount to more than 60 miles.

The ebb-tide, with a few exceptions, takes a more decided north western direction. It first great outflow is between Guana Island and Tortola, its second between the western end of Tortorla and Mary Point, and its third between Green Kay and Thatch Kay. The velocity with which the northern tide runs through these three passages is no where surpassed, though it has a great many by-ways for its outflow, which the map will point out. From the harbour of Tortola a stream of the ebb-tide sets easterly, which is again met by another coming from the passage at Peter's Island, and by a third from the Round Rock passage; they unite off the southern bluff point at Beef Island, causing an eddy tide and a considerable swell.

Frenchman's Bay is divided from the mainland of Tortola by a small and shallow channel; generally speaking, the tide here sets west. This would be its natural direction during ebb-tide, and the reverse during flood; but at that period the tidal stream running with great velocity through the passage between Tortola and Thatch Island, it finds itself a second time compressed by the narrow passage between Frenchman's Bay and little Thatch Island; the waters on escaping this compression extend and come in contact with the bluff at the tower, and a re-flux takes place towards the passage, which acts as an in-draught, forming consequently at flood-tide an eddy race around the whole island.*

This passage is said to have become deeper within the recollection of many of the inhabitants; if this be really the case, it must be in consequence of the transporting power of this local current.

The velocity of the tides between the Virgin Islands de-

* Anegada, inside the Reefs, offers a similar instance on a larger scale: the current is here however permanent, which is not always the case at Frenchman's Bay, but chiefly when a strong northerly wind prevails during the period when the southern tide is predominant.

pends very much on local circumstances. Where two streams unite, after having made their way through different passages, the velocity is generally increased. The southern tide is of considerable force between St. John's and St. Thomas's; I have known that tide to be so strong, that six able boatmen could make no progress or head way for hours; it must then have run at the rate of five miles.† The same is the case between St. John's and Tortola shore. But the north-western tide is of still greater strength than the flood-tide, though the latter comes from the Atlantic: the prevailing current in the latitude of these islands setting W.N.W., the flood-tide has to overcome its opposing force, which weakens its velocity. This is not the case with the ebb, where the set of the tide and current being nearly the same, the latter adds its force to the first and increases its velocity. I have seen many vessels, on beating through these islands during a north-western tide, fixed to one and the same spot for a considerable time; and others come to an anchor, relinquishing the contest with so heavy a lee-tide. The tides have their greatest force at springs, but especially at the day of full and change; and the tide which happens at the time this takes place is considerably stronger than the previous one. The velocity of the northern tide is strongest between Beef Island and Commanoe, and it is often impossible to cross from one island to the other during such a tide. The attempt proved nearly fatal to Mr. L., of Beef Island, who returning from Comanoe, thought himself strong enough to contend with the opposing tide, but was soon deprived of his oars, which were instantly swept away. Finding that the northern current set him to leeward he used the seats of his boat as paddles, which met, however, the same fate as the oars. Meanwhile the tide changed, and at day-break he found himself drifting towards the Round Rock passage. Without fresh water, or a morsel to eat, his boat became the sport of the changing tides for the next two days, sometimes so near Beef Island that he could not think

† I scarcely need to observe, that when miles are here spoken of, nautical are intended, 60 of which make a degree.

but that the boat would be drifted ashore, and a southern tide then sweeping him towards the Round Rock or Broken Jerusalem. Nearly overcome by hunger and thirst, and given up for lost by his relations, he was at last discovered, on the third morning, by some people from Spanish town, who hastened to his assistance.

A very strong northerly tide runs likewise between Tortola and Thatch Island, which but lately offered a more tragical instance of its force. An African purposing to return from Belmont estate, at Tortola, to Thatch Island, late in the evening, on finding that his companion declined to set off at so late an hour, thought that he could manage the boat alone. He was never seen again; the keel and broken timbers of the boat were found on the eastern end of Thatch Island, and told his fate. Not able to stem the tide, his boat was probably driven against the rocks and split to pieces. The oars, sometime after, were picked up in one of the Bays on the north side of St. Thomas's.

The tides are so powerful in some of the passages between the smaller Virgin Islands that the buoys attached to the ropes which indicate where the fish-pots are placed, sink so that the fishermen cannot haul them except at slack tide, when the buoys become again visible. The great strength of these tides is, however, only partial: their average velocity in general does not exceed a mile and a half or two miles, in ordinary cases, in the channel, and probably decreases at some distance out at sea.

The medium of the perpendicular rise of the tidal wave between the Virgin Islands does not amount to more than two feet, being at spring tides 26 to 36 inches, and at neap tides 16 to 18 inches. These comparatively low tides tend to prove how little tide there is in the Atlantic near the equator; and though there is no great range of coasts to produce a considerable elevation, the narrow passage and channel of which this group is composed might have led us to expect a different result. The accumulation of water in consequence of the trade-winds and the equatorial current, may, in some respects, prevent a higher elevation; and ac-

cordingly we find that beyond these latitudes the tide rises to a greater height, even where the range of coast is not so extensive, as from 8 to 10 feet at the Canaries,—from 4 to 6 at the Bermudas. The sandy shores and beaches of the Virgin Islands are flat, or ver gently sloping, which we may take as a proof that the tides have never been of greater height there, at least not for several ages; and the progress of the tidal wave must consequently be very trifling.

The southern tide is predominant during the summer months, *i. e.* from the middle of June to the middle of August; and two tides have been then known to follow in succession, chiefly if the wind has been westerly. The consequence was that the perpendicular rise of the tidal wave was increased, and, as an extraordinary case, the water reached the height of three feet.

There is another circumstance which deserves to be particularly mentioned. At the period when the southern tide becomes predominant, which is generally in the middle of June, the tide sets for eight or ten days continually to the south, with a force very seldom surpassed. It is called by the fishermen, 'the St. John's tide,' the day of this saint occurring about that period; and commenced last year on the 12th of June, lasting to the 21st of the same month. The seine-boats could not round fish for the whole week, nor were the fishermen able to discover their pots, the buoys being all sunk. At other times the ebb sets to the north for the course of an hour or two, when the flood begins to flow again to the south.

During the months of September November, and March, and April; the northern tide is prevailing, and of considerable force, being assisted by the current. At this period also the highest water is generally in the morning, and there is only a half-tide in the evening; the reverse takes place during the summer months.

In estimating the transporting power of tides in general, we must be careful not to consider it the same as that of the currents of rivers. It has been stated that a velocity of three inches per second at the bottom of a river will just

begin to work upon fine clay, and, however firm and compact it may be, will tear it up; a velocity of six inches will lift fine sand; eight inches, sand as coarse as linseed; twelve inches will sweep away fine gravel; twenty-four inches will roll along rounded pebbles an inch in diameter; and three feet per second will sweep along shivery angular stones of the size of an egg (Encycl. Brit, art. *River*). Considering the average velocity of the tides between these islands to be two nautical miles (6120 feet = 73440 inches + 2 = 146880 inches ÷ 3600), this would give forty-one inches per second, a greater power than the highest above stated; yet even in the comparatively shallow channels, where we might conclude that the superficial velocity extended to the bottom, the water, nevertheless, remains clear during the strongest tide: thus showing either that the force or moving power of the tides at the bottom is not equal to their velocity on the surface, or else that their action is inferior to the moving power of river-currents. When the ground-sea is not prevailing, the water in the channels is even remarkable for its clearness, and strangers are often alarmed by seeing the bottom distinctly in eight and nine fathoms water. I have myself distinctly observed at that depth a peculiar kind of sea sponge called 'Java pots' (a species of Alcyonum.*)

* Mr. Maclean, a gentleman in Tortola, high in scientific attainments, drew my notice to another phenomenon, which may be observed in the channel between that island and Jost van Dykes, namely a counter current at a depth from two to three fathoms, to which his attention was first attracted by seeing pieces of wood, &c. moving in a different direction from those on the surface; this statement I afterwards corroborated by my own investigations. In calm weather, when the surface of the sea was unruffled, I went out in a boat, and having attached a lead to a line, to which at intervals of a foot small pieces of deal wood were tied, I threw the lead where the tide was running strong to the south; the upper pieces of wood, consequently, floated in that direction, but those at the depth of eleven feet and upwards pointed to the northward. Either the moving action of the tide, therefore, only extends to that depth, or this arises from the W.N.W, current, which, though too weak between the islands to resist the strong southern tide at the surface, ex-

The unchanged character of soundings for a length of time in places which have been surveyed with accuracy, and to the results regarding which implicit confidence, may be given, has attracted already the attention of geologists to the fact, that the transporting power of tides is small, nevertheless, where channels are contracted, and the general depth is not considerable, and the velocity is increased by other obstacles, they will produce some change at the bottom of the sea, chiefly by effecting the shape of sand-banks where they approach the surface, and are thus besides subjected to the disturbing power of the waves.

There are few rivers which during freshets do not convey a quantity of detritus into the sea, and if their mouths are tidal, this detritus is committed to the charge of estuary tides; if they be tideless, generally deltas are formed. Few of the rivers along the north-eastern coast of South America are tideless, and the quantity of detritus borne down by the Orinoco is carried forward until local currents turn its direction and convey it to distant shores or shallows. In a paper on 'Anegada,' published in the Journal of the Royal Geographical Society of London (vol. ii.), I invited attention to the existence of a current passing that island in a W.N.W. direction, and which I conceived to deposit detritus on its shores.* To this current and its transporting power, we

tends to a greater depth than it, and keeps its original course lower down.

* While on the subject of this current, it may perhaps be interesting to observe that I have received since the publication of the above remarks two proofs which are sufficient to substantiate my surmises with respect to this current. In the latter part of 1831 a bottle was picked up on the southern side of Virgin Gorda, which, according to a paper inclosed in it, had been thrown from the ship "Gambia" in the River Gambia; and on the 8th of January, 1833, another bottle was picked up on the northern side of Anegada which contained a paper now in my possession, of which the following is a correct copy—

"*Currents of the Ocean.* The bottle containing this note was cast overboard from the bark Emerald of London, bound to Jamaica, the 17th day of December, 1831, in lat. 36° 40 N., and long. 12° 32 W. by chronometer. Whoever finds it is requested to forward it to the editor

must look for the origin of the large sand-bank which extends from the western end of Anegada to within a short distance of the Island of Jost van Dykes, and which is called the middle ground. On its passage along Anegada the current is influenced by the tides of the Virgin Isles, and delivers part of its detritus to the tidal stream, which the usual check of the counteracting tides causes to be deposited. The greatest extent of this bank is in a south-westerly direction twenty-two nautical miles, whilst its breadth varies from one mile and a half to three miles, proving in a striking manner that the flood-tide deprives the current of the detritus which composes the bank. The action of the waves during a gale or a heavy ground-sea possesses more moving

of any newspaper who may be kind enough to notice it for public information.

" C. W. NOCKELLS, Commander.
" C. O. HODGSON, } Passengers.
(Signed) " E. M. GEACHY, }

" NOTE.—Two bottles are thrown overboard here, both of the same import. Two more were also cast overboard on the 5th inst. in lat. 41° 48′ N., and long. 13° 49′ by chronometer. The winds for the last three days have been from N. and N.W. to S.W. For eight days previous it blew a continued and heavy gale from S.W. and W.N.W. lying to the whole time, and drifting from lat. 41° 28′ 237 miles to the northward."

The southern current along the coast of Spain and Portugal had probably drifted this bottle towards the mouth of the river Gambia, where it may have been taken up by the western current and drifted towards Cape North, and thence by the N.W. current to the shores of Anegada. If we calculate, therefore, the direct length of the three main courses of the currents, we have a distance of 4796 nautical miles, and the bottle having been taken up on the 743d day after its having been thrown in the water, supposing it to have been drifting continually during that period, the mean velocity of all three currents would be .26 knots in an hour, or nearly seven miles in a day; the difference in the winds, and perhaps other circumstances and detentions not included.

The above calculation of the velocity of this current is necessarily vague; nevertheless, it may afford an addition to our knowledge of the general velocity of currents; and the drifting of these two bottles establishes the truth of my former remarks regarding the current passing Anegada.

power than a tidal stream or current of the greatest velocity; and the sand, once detached from this bank, is set afloat and carried forward and backward by the tide until deposited.

If we cast a glance on the accompanying tidal map of the Virgin Isles, we observe that wherever the stream of flood directs its course through one of the passages after having passed over the middle ground, a sand-bank of more or less extent has been formed. The stream of flood being opposed by the reflux, by headlands, or contracted channels, by sunken rocks, or any other obstacles, however small, is forced to deposit its sandy particles; and the foundation of a sand-bank once laid, it is well known how soon it accumulates.

The shallows in Sir Francis Drake's channel are, therefore, derived from sandy particles which have been carried from the extensive bank to the northward of the Virgin Isles, and which the flood-tide has deposited. I do not think that the shallows have shifted much since their existence, in consequence of the nearly equal counteracting effect of the tides; we may find them, however, somewhat increasing towards the northward, because, as already alluded to, the northern tide is, generally speaking, the stronger of the two; and though the flood-tide carries the sandy particles in its train, it is the northern or ebb-tide which causes them to be deposited. At this moment these sand-banks can scarcely prove of any danger, and I doubt much whether they ever will be so, unless some violent convulsion of nature or a hurricane of uncommon strength should detach such a quantity of sand from the middle ground and from the land, that changes of more serious character than ordinary should be the consequence. The shallowest part in the channel is abreast of Peter's Island, where there was in February, 1833, only four fathoms water.

Before I conclude these remarks, I shall add some observations which may prove of advantage to the navigation of these channels. The passage between St. John's and a small bay lying midway between the former and the eastern

end of St. Thomas is often selected by vessels bound for St. Thomas', and which may have made the Virgin Islands to the northward of them. This should not be attempted, however, when there is a northern tide, and the wind any way to the south of east, as vessels will then almost certainly be set on the reef, being unable to stem the force of the northern tide, which is so strong here that droghers have given this passage the name of "the current hole." This passage is especially dangerous during the spring months, when the northern tide is stronger than at any other period, and the instances are not few of vessels having been set upon the reef in this direction when the danger was quite apparent. When the tide sets to leeward, vessels beating to windward through Drake's Channel should make short tacks along St. John's shore as soon as they have reached Mary Point, or else stand over towards Jost van Dykes, and try to fetch the passage between Thatch Island and Tortola; having reached Pelican Bay or Witch Island, the northern tide trends to the eastward and favors a vessel as far as the north-eastern entrance to Drake's Channel. Should the tide, however, have changed meanwhile, and at her arrival off Beef Island be flood, the stream there branches off to the south-west, and short tacks should be made along Beef and Scrub Islands until the Kays called the Dogs are weathered. Should the contrary be attempted, a strong southern tide is apt to set the vessel towards the Round Rock or Broken Jerusalem, and some efforts would be necessary to make good what has been lost. Vessels beating to windward outside of St. John's, when there is a southern tide, should keep the land aboard as much as possible: it is, however, different when the tide runs to the northward, when they ought to stand out.

MARRIAGE OF DON PEDRO AND THE PRINCESS OF LEUCTENBERG.

From a letter of the late Hon. William Tudor, U. S. Chargé d' Affaires at Rio de Janeiro, to Mrs. R. H. G——, of G——, Maine.

Rio de Janeiro, Oct. 24. 1829.

* * * * Were I skilful in the description of festivities, processions, costumes, ceremonies, &c., I should, now, have a fine opportunity to write you a long letter, from the quantity of these the arrival of the new Empress has occasioned, and which are to continue many days longer. But such things do not interest me enough to observe them accurately in detail; and, after seeing them with rather a vacant look, I can seldom recall to mind any of the particulars. However, I will try to give you some of the facts relating to an event which is, on several accounts, one of importance to this country.

You know that Don Pedro was a brother-in-law of Napoleon, his first wife having been a daughter of the Emperor of Austria, and sister of the Empress Maria Louisa. His new wife is a daughter of the Viceroy Eugene Beauharnais and a Princess of Bavaria, still living. One of her sisters is married to the crown Prince of Sweden a son of Benadotte, and another to the Duke of Hohenzollern, a German Prince.

The Princes Amelia of Leuctenberg and Eichstadt, which was the late title of the present Empress of Brazil, is in her eighteenth year, and is said to have received a very careful and finished education. Being the grand-daughter of the Empress Josephine she ought not to be without grace and loveliness. She is tall, and has a fine person with a frame that, if it should hereafter attain *en bon point*, may display a figure of truly imperial dimensions. Her eyes are beautiful. To me they seemed dark brown, but, others say they are dark blue, and one person tells me they are light grey. Her manners are graceful and dignified, and her countenance expresses intelligence and great amiability. She was married by proxy in August, left Munich immediately after, and embarked at Ostend in a steamboat for Falmouth,

where she was joined by the young Queen of Portugal, and where two Brazilian frigates were in readiness to receive them and their numerous suites. The empress did not land in England it being contrary to etiquette.

Her arrival, here, has already occasioned four days attendance at court, by the Diplomatic Corps. The first was in being present at a "TE DEUM," in the Royal Chapel, as soon as the event was officially known. The arrival of course was looked for, by the Court, with great impatience. On the 15th inst a sloop-of-war, having on board the Mor Domo Mor—Lord High Chamberlain of the Empire—entered the harbor with the intelligence that the frigates were on this side of the line. The next morning they were signalized as being in sight, and the Emperor embarked in a steamboat, which had been kept in readiness, to go out to meet them. It is said, that he trembled so much, in getting into the boat, as to be hardly able to support himself. In fact, the meeting was sufficient to excite the sensibility of any men: not only as regards the youthful spouse of whom, from verbal and painted representations, he was already enamored, but, his daughter, also, to whom he is fondly attached, and with whom, as the young Queen of Portugal *de jure*, so much political interest has been connected.

The steamboat hastened out of the bay, and the Emperor transferred himself to the frigate on board which his bride and daughter were. The meeting was one of much emotion. I have heard, though I cannot vouch with certainty for the account, that his daughter first ran to meet him, and was thrown into tears as, embracing her he said, "thou hast lost the kingdom of Portugal!" He then descended to the cabin where the Empress threw herself into his arms, and bursting into tears, said, she had "left all her friends, and come an immense distance, in full confidence in his honor and protection." The Emperor himself was so much affected as to be unable, for some minutes, to articulate a syllable. An English officer who went on board with his Admiral to pay their respects after their arrival in the harbor, told me that the Empress appeared dignified and self collected—seemed to

receive the attentions of Don Pedro as a matter of course and duty—ever and anon glancing a side look, as if to form an opinion of her new husband.

The sea breeze was faint that day, and the steamboat having taken in tow the frigate with these high personages on board, came slowly up the harbor, while the other Brazilian ship, and an English and a French frigate which had gone out a few days before to meet them, came up two or three hours after, as the breeze sprang up. Three or four of my corps passed the morning with me, as my house is situated on the shore, and this arrival was an interesting sight. There are five forts in the lower part of the harbor. and there were four Brazilian ships of war, besides gunboats, two American corvettes, an English ship of the line, and three French frigates at anchor on its waters, all of which opened salutes. To the illustrious young personage who now saw this bay for the first time, its sublimity and beauty could not fail to be impressive, however her feelings might otherwise be occupied. As soon as the salutes began, the scenery was half hidden for a considerable time, as there was no breeze to carry off the smoke: you may judge of this, when there were five fortresses and a dozen ships of war each firing a half a dozen salutes of twenty-one guns. The atmosphere though clear, was not, unfortunately, in a favorable state for echoes, which, here, are sometimes exceedingly grand and multiplied.

The Queen of Portugal landed immediately, but the Empress remained on board the frigate. We received invitations to attend the marriage ceremony in the Royal Chapel the next day at 12 o'clock. Unfortunately it rained on this, and rained obstinately the whole day. The weather was so chilly, too, that the Thermometer fell to 66°, and I was glad, in the evening, to sit by a coal fire at a house where I was visiting—the only one in Rio de Janiero that has a chimney. There are about eight or ten days in the year when the Thermometer falls below 70°, and when a fire is very comfortable.—The weather might be churlish, but the marriage ceremony must go on. The spectacle

would have been very showy if the day had been fine; as it was, I understood, that the streets and houses, through which the procession passed, were crowded with people, though it rained incessantly, and both spectators and troops must have been thoroughly drenched. The Empress landed at the arsenal, and came to the chapel in a carriage drawn by eight horses. She was accompanied by her brother the Prince of Leuctenberg—a young man of twenty-two—and the Marquis of Barbacena. The Emperor arrived in a similar carriage with the Queen of Portugal and two younger Princesses: the *cortege* consisting of five or six other court carriages with the attendants, each drawn by six horses. A great number of handsome equipages with showy liveries brought a variety of official persons—heralds at arms in antique costume, Ministers, Counsellors, Chamberlains, Bishops, Judges, &c, &c., in dresses of every color, with stars, ribbons, and embroidery without end.

The Royal Chapel, as is usual in Catholic Churches, is in the form of a cross, the great altar—where, beneath a rich canopy the ceremony was performed—being at the upper extremity. The diplomatic corps were on one side of the altar, in three tribunes immediately overlooking the spot occupied by the Emperor and Empress. In the tribunes directly opposite were Count Mejeon--an old French General always attached to Prince Eugene, and now acting as the Counsellor of his children—and several Bavarian officers and Brazilian Counsellors of state. Beneath these, and facing us, in a tribune, forming a small room which the Emperor usually occupies when attending mass, were the Queen of Portugal, the Prince of Leuctenberg, two or three Chamberlains, and the principal lady of honor. The ladies of the court, chiefly distinguished by immense plumes of white feathers and a display of diamonds, occupied tribunes along the sides of the Church while the body of the chapel—except immediately near the great altar, where stood the Canons and other Church dignitaries and the great officers of state,—was filled with various persons in public employ.

After alighting from her carriage, in front of the chapel,

and entering under a *dias*, which served as an umbrella, the Emperor led up his bride, her train, some five or six yards in length, being borne by two or three pages. Once placed under the canopy, at the great altar, the service commenced by a chant from the ecclesiastics. A piece of crimson damask was then spread on the carpet in front of the altar; upon this two cushions of the same were placed to which he led the Empress and they knelt down together.

Let me here mention, that the whole church, on these occasions, is ornamented with great richness and elegance; the walls are entirely covered with damask and velvet, with gold and silver lace, and festoons of gold and silver tissue of the most delicate colors.

The Nuptial service was chanted by the Bishop of Rio de Janeiro. After this was gone through, he consecrated two rings which were delivered, by the Marquis of Barbacena, to the imperial couple, and each taking off a glove put on the ring given: the "TE DEUM" then began and the Empress sat down. The Emperor and every one else continued standing during the whole ceremony, and it was long. It must have lasted upwards of an hour. The music of the Royal chapel is very fine—better than that of the opera—and Portugello, who must be one of the oldest of living composers, is the conductor. The music of this "TE DEUM" was beautiful, and composed by the Emperor himself, for this occasion.

I could not help here remarking, how well the children of the imperial family are *broken in*, to sustain, with strict decorum, the tremendous ennui of court ceremonies. The Queen of Portugal, who stood opposite to us, splendidly dressed, and in magnificent diamonds, is only in her eleventh year, yet remained through the whole, with her hands crossed, and fan in them, without the slightest movement of ennui or *fidgettiness*. The two youngest Princesses, the one seven and the other five years old, who were standing beside their Father directly beneath me, preserved the same propriety, except towards the close, I perceived the youngest beating time with her foot and playing a little with her fin-

gers; but, even this was slight, while we old grey-headed men changed postures twenty times. The canopy intercepted a view of the Empress when she was seated—except of her train and dress: but the Emperor was very much affected during the ceremony, and was obliged repeatedly to apply his handkerchief to his eyes. Though a very affectionate Father and watchful of his children, he seemed to have totally forgotten, the two little creatures by his side.

A marriage is always an affecting ceremony; the pomp and circumstance of this—the exquisite music, &c. &c.—were calculated to make it peculiarly impressive. There were associations, besides, tending to produce musing: the memory of the former Empress—this young Empress bride the daughter of Eugene, awakening recollections of the glory and reverses of Napoleon—the youthful Queen of Portugal already an historic character, despoiled of her kingdom by an usurping uncle, &c. &c.

Hitherto, we had only looked down upon the Empress, and could not judge well of her countenance, but took a stand on her passage out, that would enable us to bow and see her face. The palace, in the city, occupies two sides of a square: the chapel is at one extremity, and from it there are a suite of galleries and apartments to the state rooms. The Emperor resides at San Christoval, a palace without the city, but on this occasion, preparations were made for the family to pass two or three days in the palace in town, which looks upon the harbor. We placed ourselves, in a passage rather obscure, with a window that threw its light directly in our eyes, so that it was more easy to be seen than to see—an alternative, which would not have displeased the wife of the London Sheriff who complained, so bitterly, that the manager had given her a box where she could "neither see, nor be seen." As they came up the Emperor said to his bride, "this is the Diplomatic corps," and we exchanged reverences, which on one side, at least, were exceedingly graceful. This first and hasty glance made us unanimous in opinion that she is handsome, with a most amiable expression.

The next day, Sunday, pursuant to invitation, we went

to the palace, at one o'clock, to be presented, and to congratulate the Emperor, on his marriage. According to the usual practice, the oldest of the Diplomatic corps makes the compliments, in the name of the rest. They assemble in an inner room by themselves, accompanied by the several persons of their nation, whom they intend to present. The Marquis of Aracaty, minister of foreign affairs, came to us now to apologize for not having informed us before—but there had been no time to make preparations,—that, after the audience of the Emperor we should be presented to the Queen of Portugal, and were introduced to her principal chamberlain for this purpose.

When we came to the audience, Baron Marechal, the Austrian minister, made a compliment to the Emperor, and then turned, and made rather a longer address to the Empress, who was standing at his side. Don Pedro seemed to me not wholly pleased with this, though it was strictly proper. He and the Baron have had alternations of intimacy and coolness, the latter being rather the prevailing mood at present. Being next in order, I had an opportunity of seeing an amusing bye-play. The Emperor looked at the Baron attentively all the time, curling his mustachios with his fingers,—rather a familiar motion—and seeming to indicate that they were tickling his lips, an operation that marks some excitement. However, it passed off very well: we all made our bows to each in turn, and were "most graciously received." After getting through the two intermediate rooms crowded with Brazilians of various ranks, and in costumes of every description, to our old saloon, we prepared for the audience of the Queen. On these occasions there are four or five-hundred Brazilians to be presented, all of whom kneel to the sovereign and kiss his hand; the ceremony is utterly fatiguing to him, and takes up two or three hours. My experience of courts is very slender, but I presume this of Rio Janeiro to be one of the most insipid in Christendom: nothing but a mere piece of etiquette.

Baron Marechal said, before our audience of the Queen, that he should say nothing to her beyond a *family compli-*

ment; to assure her that his sovereign felt the strongest interest in her; and that she might always rely on the friendship of her grand-father, and all his family. That as to public compliments, there was nothing to be said in her present situation, and that we could each of us say what we pleased. All agreed to confine themselves to a bow. The address of the minister seemed to effect her strongly, she colored deeply, and her eyes were filled with tears. Of course it recalled her mother to her thoughts. She recovered herself almost immediately, however, and received us with great propriety. Her face resembles very closely the portraits of the late Empress. Perhaps in your republican simplicity, you will find all this fuss about a child of eleven, mighty absurd; however, I know you have not a pharisaical pride of opinion, and will not condemn what may appear strange. Sovereignty in monarchies is a personification, with us an abstraction—the comparative merits I shall not enter into, because my opinions would inevitably be embued with prejudice. From all my experience, however, I am more and more convinced, that we are the only people capable of the system we live under. Let us hope to preserve the morality and intelligence essential to its existence:—but there are others, who are led away by names, and a generous enthusiasm in a few, who have tried it in vain. It has been, and will be productive of only blood-shed and ruin. As well might you root out the green gages—I long to taste them—and gooseberries in your garden, and insert chirimoyas and pine-apples. To return to my subject: on Monday we again went through the annoying ceremony of the Levee. It being one of the grand galas of the year, the festival of Don Pedro d'Alcantara, patron of the Emperor, and the Empire. The audience was also repeated to the Queen of Portugal.

Perhaps you will think, I should say something of the Empress' dress; but this I should know little about at any time, and on these occasions seeing her only for a moment, (the sovereign's stand on the throne, we bow into the room three times in advancing, and three times in retreating backwards, and this is the whole ceremony,) I was too much

taken up in watching her countenance to look at her dress. However, on the day of her marriage, white satin, lace, and a veil thrown back, I think without diamonds was the dress; the next day the richest muslin and lace, with gold ornaments, flowers in the hair, and *magnificent* diamonds—the third day, some variation in the dress, and on the head a very elegant white muslin turban, rather large, with two very beautiful bird of paradise plumes.

This young person has a difficult part to play, but it may be a very useful one to her husband and this empire, if she has the requisite firmness, and good advisers. One step* she took the first day, showed character, and was attended with success. It is impossible to form any opinion of one so young, but all appearances are in her favor. As she may be better suited to him than his first wife, though she was a fine and excellent woman. The rainy day having prevented great part of the ceremonies, though the city was illuminated four nights, the festivities will recommence next week to be continued eight days. The triumphal arches &c., will be completed. They have laid out immense sums in these. There are five triumphal arches, a temple of Hymen, a colonade, a column, 120 feet high, all of wooden frames covered with painted cloth, which exhibit a showy, splendid appearance. Though merely to stand a few

* This was respecting the child of the Emperor and the Marchesa of Santos, which, in violation of all decorum, he has legitmated, and entitled Duchess of Goza. It is stated that his bride said to him, "the children of your majesty are my cousins, and they will always find me an affectionate mother, but this other child cannot remain under the same roof with me. It will be better to send her to Europe, and let her be educated there." The child, without any objection by the Emperor, was immediately removed to one of his country houses. This was done, as a decided redeeming of a pledge, that the mother should not again come to court. This little Duchess of Goza, of whom the Emperor is very fond, as of all his children, is about four years old. The children one day in play together were saying (that is the daughter of the late Empress, "my grand-father is the Emperor of Austria,—" the little illegitimate lisped the same, "my grand-father is the Emperor of Austria," to which the Queen of Portugal said "no, no, no, thee hast no grandfather."

days, they have cost 200,000 millreas. We are to have a grand ball, and entertainment, a concert, fire-works—a corvette to be launched called after the Empress, &c.

This people are very fond of show, of public festivities, processions &c.,—private society and hospitality they are entirely without. Strangers are not invited to their houses; they come to us, but make no return. I think this is owing in great part, not merely to the predominance of Portuguese habits, but to the inferior character of the women, from utter want of education. This will be remedied in time, education is fast making its way, but the female part of society is, at present, infinitely inferior to that of the Spanish countries on the continent. The grace and vivacity which distinguish the latter are, here, almost wholly wanting.

RECENT DISCOVERIES IN THE ANTARCTIC OCEAN.

From the Log-book of the Brig Tula, commanded by Mr. John Biscoe, R. N. Journal of the Royal Geographical Society.

The brig Tula, of 148 tons, belonging to Messrs. Enderby, and commanded by Mr. John Biscoe, R. N., left the port of London on the 14th July, 1830, on a South-Sea sealing voyage, but with special instructions from her owners also to endeavor to make discoveries in a high southern latitude. She was liberally equipped with whatever appeared requisite or desirable on such an enterprize; and was accompanied by the cutter Lively, in the same employ, and attached to the Tula on the footing of a tender.

The two vessels, after touching at the Cape Verde Islands for salt, arrived off the Falkland Islands on the 8th November, and anchored in Port Louis, Berkely Sound, on the 10th. Captain Biscoe speaks highly of the convenience

of this port for vessels bound round Cape Horn: fish, bullocks, and fresh water can be easily procured, with a variety of anti scorbutic herbs to use as vegetables: the entrance being also clear, the anchorage good, and the depth of water considerable close to the beach. A refitting yard here, he considers, could be very easily established, and would be both a great public and private benefit.

On the 27th November, having completed their water, the Tula, and her consort again proceeded to sea; and, on their way to Sandwich Land, kept a vigilant look-out for the Aurora Islands, laid down by the Spaniards in lat. 53° 15′ S., long. 47° 57′ W.;* but which, having been unsuccessfully sought for by Captain Weddell, and now again by Captain Biscoe, must be either considered henceforward as not existing, or looked for in some other position. On the 10th December, in long. 29° 14′ W., many icebergs were passed, which were conceived to be drifting between Sandwich Land and New South Shetland; and among them the two vessels parted company, to their mutual great anxiety, and did not again meet till the 14th. On the 20th, an island was made, in lat. 58° 25′ S., long. 26° 55′ W.; but its appearance being very discouraging,—in Captain Biscoe's words 'terrific, being nothing more than a complete rock, covered with ice, snow, and heavy clouds, so that it was difficult to distinguish one from the other,'—no attempt was then made to land on it. Proceeding to the southward, on the following day, another island was distinguished in the S. W., similar to the preceeding one, which now bore W. by N.; and the cutter was directed to examine both, in which

* These islands were supposed to have been discovered by the ship Aurora, in 1762; and again seen in 1790, by the Principessa. In 1794, also, the corvette Atrevida went purposely to ascertain their position; and, after passing nine days in their immediate vicinity, reported the above as the latitude and longitude of the southern most; at the same time placing a second in 53° 3′ S., 47° 53′ W., and a third in 52° 37, S., 47° 43 W. See Weddell's Voyage, p. 62: and other recent attempts made to find them have been equally unsuccessful—See Morrell's Voyages (New York, 1832).

her success was very incomplete, the boats not being able to effect a landing on either. These were the Montague and Bristol Islands of the charts, but which Captain Biscoe places fifty miles further west than they are usually laid down. The thermometer stood at 29° in the air, and 31° in the water. A third, Friesland island, was seen to the southward of them; and a fourth, to the northward.

Several following days were spent in endeavoring to get to the southward, and, if possible, also to the westward, there being strong indications of land in that quarter; but these were all unsuccessful. The field-ice was either quite continuous and unbroken, or where bays were formed in it and entered, these were found open but a little way, and the vessels were obliged to return as they went in. Fortunately, the water was remarkably smooth even when the wind, which hung, to the westward, blew strong; and this circumstance both facilitated the manœuvring of the vessels, and encouraged their crews to persevere, by confirming their surmises as to the existence of land in the neighborhood. On the 29th, at noon, the latitude observed was 59° 11′ S., long. 24° 22′ W.; but the wind blowing then hard from the south-west, further investigation in that quarter was abandoned; the islands before seen were again sighted, and the longitudes of their centres being further determined, and confirmed to be about 27° W., sail was made to the eastward.

Captain Biscoe was thus prevented from making any specific discovery in this meridian, though he has furnished strong presumptive evidence that a considerable body of land stretches due south from the known heads of Sandwich Land; while, on the other hand, the very high latitude (74° 15′ S.) attained by Captain Weddell, a few degrees to the westward (viz., in 36° W.), further proves that its western extremity is at no great distance from these heads.

On the 5th January (1831), the Tula and her companion were in lat. 59° 9′ S., long. 21° 52′ W.; and on the 7th, in lat. 59° 35′ S., long. 20° 21′ W.; closely skirting the field-ice the whole way, and examining every inlet, in hopes of finding a passage through it to the southward, and,

as they hoped, to clear water. In this, however, they were constantly disappointed; and, on the contrary, on the evening of the 7th, says Captain Biscoe, 'my hopes in this direction were destroyed, for I suddenly found myself at the head of a bay of firm ice, with a view, from the mast head, to an extent of at least twenty miles in every direction; and, to the southward, the ice appeared so smooth and firm, that any one might have walked on it. The weather, too, was now so clear, that, I am convinced, land of any considerable elevation might have been seen eighty or ninety miles. What further astonished me was, that there were no living animals of any kind about this ice, with the exception of one or two small peterels,—not even any penguins, which at other times had been very numerous. These circumstances almost convinced me that this ice must have been formed at sea; the temperature of the water being then 30°, and that of the air 31°, with frequent and very heavy falls of snow. Nevertheless, there were strong indications of land in the south-west, though none was actually within our horizon; and the water continued very smooth.'

From, the 7th to the 16th January the course made good was nearly due east; the latitude being then 59° 16′ S., longitude 7° 14′ W. The wind had hung during the interval to the south, with fresh breezes, on two occasions, from south-west, and a considerable sea, as though the distance from land was now increasing. The ice was also, from time to time, more broken into bergs, fifty-eight of them being at one time in sight together; and on the 16th, the temperature of the water was 34°, of the air in the shade 45°, in the sun 77°, with a corresponding genial warmth to the feelings of the crew. The wind also veered now to the west-ward, and the vessels were hauled up to the south-east, steering between ice-bergs and broken patch ice; but scarcely any birds were yet to be seen; though, on the 20th, two nellies* were observed, and one albatross, being the first since leaving the latitude of South Georgia.

On the 21st, the latitude attained was 66° 16′, longitude

* "A bird of the peterel kind, of a mixed grey and brown color, an unpleasing appearance, and very voracious." Weddell, p. 59.

00° 24′ 30″ W.; temperature of the water 36°, of the air in the shade 38°; no ice in sight; but the wind again drawing to the south and south-east, and many indications of land in the same quarter. Several spotted eaglets, (one, apparently, a new variety, rather larger than a Cape pigeon, with brown beak, wings, and head, the other parts white,) with some blue peterels, were in sight. On the 23d, the wind was from S.S.W., and came in puffs, as from land; the water was smooth, and at times discolored; and many eaglets and Cape pigeons hovered about the vessels; lat. 67° 42′ S., long. 3° 31′ E.; temperature of the air at midnight 31°, of the water 35°. The ice now, however, began again to close in, and the wind to hang to the south-east, frequently fresh, but generally more steady than for some days previously. On the 27th the latitude was 68° 1′ S., long. 10° 7′ E.; temperature of the air 31°, of the water 34°; wind E.S.E., blowing strong with a heavy swell; much snow falling, and many ice-bergs in sight, besides patch ice, or rather, as it appeared, field-ice with its outer edge somewhat broken. Few birds were in sight, and those chiefly penguins, seated on icebergs. Much danger was also here encountered, while working among the icebergs and patches, but the object of getting to the south-east was steadily pursued.

On the 1st February, the latitude was 68° 51′ S., long. 12° 22′ E.; temperature of the air 30°, of the water 34°. A seal was seen near the Lively; and many snow birds, with brown eaglets, hovered about the vessels; while at different times, birds, thought at the time to be land-birds, but afterwards believed to be king-birds, which, though acquatic, do not go far from land, were seen at a distance flying towards the south-west. The water also was of a lighter color; but no land could be distinctly or certainly made out, nor any soundings obtained. On the 4th, the appearances became still more conclusive, and the impression was repeatedly renewed that land was seen; but yet, even on this meridian, Captain Biscoe is not certain on this head; and the ice trending now to the northward, a some-

what lower latitude was necessarily gained. On the 8th, at noon, the position was 67° 12′ S., 27° 15′ E.; temperature of the air 33° (in the sun 84°), of the water 33°. The wind then changed to the E.S.E., and blew hard for some days, with a heavy tumbling sea, and much danger from icebergs; through all which difficulties, however, the vessels persevered in making way to the eastward.

On the 17th, the position was 66° 44′ S., 38° 5′ E. On the 19th, they crossed Captain Cook's track in 1773, and found the field-ice precisely in the position in which he left it. On the 25th, saw a very distinct appearance of land in lat. 66° 2′, long. 43° 54′ E., temperature of the water 30°, with many ice-islands and patches of field-ice also in sight; but it was speedily lost among these, and could not be again distinctly made out. Several seals and penguins, with one young sea-elephant, were here also seen; and the margin of the solid body of ice was nearly as high as the North Foreland, and much resembled it. At length, on the 27th, in lat. 65° 57′ S., long. 47° 20′ E., land was distinctly seen, of considerable extent, but closely bound with field-ice; the temperature of the air at the time being 22°, considerably lower than had been previously experienced; that of the water 30°; and, for the first time, extraordinarily vivid coruscations of aurora australis, 'at times rolling,' says Captain Biscoe, 'as it were, over our heads in the form of beautiful columns, then as suddenly changing like the fringe of a curtain, and again shooting across the hemisphere like a serpent; frequently appearing not many yards above our heads, and decidedly within our atmosphere. It was by much the most magnificent phenomenon of the kind that I ever witnessed; and although the vessels was in considerable danger, running with a smart breeze and much beset, the people could scarcely be kept from looking at the heavens instead of attending to the course.'

Every effort was now made to close with the land thus discovered; and the most imminent risk was run during a heavy gale of wind, which began on the 5th March, and continued, increasing to a perfect hurricane, till the 7th. In

the course of it, the two vessels again separated, the Tula was much injured, several of her men were severely hurt, and their health seriously affected by exposure to the cold. Its direction was between E.N.E. and N.E.; and, on the 8th, when an observation was again obtained, the drift was ascertained to have been 120 miles N.N.W. Sail being then made to endeavor to get to the south-east, on the 16th, nearly the same land was again made; the longitude being now 49° E. A head-land previously seen, was recognized, and called Cape Ann; and unceasing efforts were made, for some days, to approach nearer it, but all in vain: and the ship's company so rapidly sunk in health and strength, that it became imperatively necessary to seek a more genial climate. Great uneasiness was also now entertained about the safety of the Lively cutter, which had not been seen since the 6th instant; and which, it seemed probable (if she had survived the gale at all), had sought a lower latitude, and made for Van Diemen's Land. On the 6th April, after nearly three weeks of the severest fatigue, Captain Biscoe determined to do the same thing, never having approached this forbidden shore (which has, with great propriety, been called Enderby's Land) nearer than from twenty to thirty miles;—and arrived in the Derwent on the 7th May ensuing; two of his men having died on the passage, and the others being so reduced that the ship was entirely navigated by the three officers, one man, and a boy. The nights during most of the period, were so dark, except when occasionally illuminated by the aurora, that in the helpless state of the crew, and their utter inability to meet any sudden exigency, it was deemed expedient to lie to, every evening till the following morning. The winds were uniformly fair after getting below 60° south altitude.

The Lively did not rejoin the Tula, in the Derwent, till the following August, having been unfortunate in her first land-fall, and been compelled to put in, and refresh her people at Port Philip, in New South Wales. Both vessels again put to sea on the 10th October, 1831, and remained on the coast of New Zealand, and among the Chatham and

Bounty Islands, sealing, but with very indifferent success, till the 4th January, 1832. They then again bore away to the south-east; the only remark of geographical importance, during this interval, being a correction in the position of the Bounty Islands, from 179° 6′ E., in which they are usually placed, to 178° 26′ E., in which Captain Biscoe conceives them to lie.

The first object now pursued was to touch at the Nimrod Islands, laid down in 56° 3′ S., and 157° 50′ W.; but the search for them was ineffectual; and Captain Biscoe is certain that they do not exist, at least where thus placed. The water here, however, looked discolored, as though on a bank, but no soundings could be obtained. On the 14th January, in 56° 26′ S., 156° 48′ W., many birds were seen, and much sea-weed was floating about. Many squalls of snow also came from the southward; and on the 25th, in latitude 60° 45′ S., longitude 132° 7′ W., icebergs were again met with; the mean temperature of the air being 37°. On the 31st, about a hundred of these bergs were in sight together; and the clouds hung constantly low and heavy in the south-west, as though land was in that quarter; but the wind coming round to the north-east, and the barometer falling, with other indications of a gale, it was considered inexpedient to examine this appearance more closely.

On the 3d February, in lat 65° 32′ S., long. 114° 9′ W., the phenomenon was observed of an ice-island falling to pieces, 'which it did very near the Tula, with a noise like a clap of thunder, and the sea was immediately covered with the fragments, only a small nucleus of the original mass remaining together.' On the 12th February, in lat. 66° 27′ S., long. 81° 50′ W., many birds were again seen (albatrosses penguins, Cape pigeons, &c.) with several hump and finned-back whales; and no fewer than two hundred and fifty ice-islands were counted from the deck. On the 15th land was again seen, bearing E.S.E., but at a great distance; the latitude being then 67° 1′ S., long. 71° 48′ W.; and sail was made to close it. On the following morning, it was ascertained to be an island, and called Adelaide Island, in honor

of her majesty; and, in the course of the ensuing fortnight, it was further made out to be the westernmost of a chain of islands, lying E.N.E. and W.S.W., and fronting a high continuous land, since called Graham's Land, which Captain Biscoe believes to be of great extent. The range of islands has been also since called Biscoe's Range, after the discoverer.

'Adelaide Island has a most imposing and beautiful appearance, with one high peak shooting up into the clouds, and occasionally appearing both above and below them, and a lower range of mountains extending about four miles, from north to south, having only a thin covering of snow on their summits, but towards their base buried in a field of snow and ice of the most dazzling brightness, which slopes down to the water, and terminates in a cliff of ten or twelve feet high, riven and splintered in every direction to an extent of two or three hundred yards from its edge. At a distance of three miles no bottom could be found with 250 fathoms of line; and round all the islands the depth of water was considerable. One, called Pitt's Island (in lat. 66° 20′ S., long 66° 38′ W.), has many bays; and forms, with the main land behind, a good harbor for shelter, but the bottom is rocky. No living animal was found on any of these islands; and not many birds, although only a few miles to the northward they were very numerous.'

On the 21st February, Captain Biscoe succeeded in landing on what he calls the main-land, and took formal possession of it: the highest mountain in view being called Mount William, after his Majesty; and the next Mount Moberly, in honor of Captain Moberly, R.N. The place was in a bay, 'in which the water was so still, that could any seals have been found, the vessels could have been easily loaded, as they might have been laid along side the rocks for the purpose. The depth of the water was also considerable, no bottom being found with twenty fathoms of line almost close to the beach; and the sun was so warm that the snow was melted off all the rocks along the water-line, which made it more extraordinary that they should be

so utterly deserted.' The latitude of Mount William was determined to be 64° 45′ S., long. 63° 51′ W.

Captain Biscoe, after this, repaired to the South Shetland Islands, where he was driven ashore, lost his rudder, and very narrowly escaped shipwreck; and, after touching at the Falkland Islands, near which he again parted company with the Lively, proceeded to St. Catharine's, in Brazil, where he learned her total loss on Mackay's Island (one of the Falklands); the crew, however, having been saved, and brought away by a Monte Video cruiser. He thence returned home; and the following general observations may properly conclude this abstract of his log.

1. In the very high latitudes, when actually, as it were, within the ice, the winds were almost uniformly from the south, round by S.E. to E.N.E.; which being contrary winds to a vessel in proceeding from west to east, Captain Biscoe is inclined to recommend that future attempts of the same nature should be made in the opposite direction, viz. from east to west. Outside the ice, however, the winds were constantly westerly; and it may therefore admit of doubt, whether the convenience of having a fair wind at command, whenever required (as in the Tula's case), to run for shelter and repairs, and of which advantage may be then safely taken, be not of more importance, than when its possession can seldom be of vital consequence, and may frequently lead to rashness and imprudence. 2. The Auroræ Australes were only occasional; but were sometimes extraordinarily vivid, and in these cases were always succeeded by bad weather. They were not observed to have any effect on the compasses. 3. The following table shows the variation of the compass throughout the voyage:—

Latitude observed.	Longitude by Chronometer.	Variation.	Latitude observed.	Longitude by Chronometer.	Variation.
58° 18 S.	23° 14 W.	2° 00 E.	41° 24 S.	150° 25 E.	11° 00 E.
59 35	18 54	1 30	40 12	178 13 W.	10 00
58 02	10 02	8 12 W.	52 44	175 52	13 00
59 16	7 14	11 30	56 26	170 30	16 00
62 25	2 28	15 00	55 55	149 49	Decreasing E.
66 48	1 02 E.	20 30	64 21	119 43	12 00
67 40	6 33	19 44	64 06	110 46	28 00
67 57	8 28	21 12	66 27	78 04	— 32
68 30	14 42	23 12	64 53	67 03	26 20
68 43	22 25	28 44	64 20	65 20	26 00
68 58	23 45	29 10	37 52	51 38	12 00
66 56	36 57	33 00	36 46	47 50	11 00
67 50	36 38	37 12	33 32	44 50	8 00
66 46	41 10	40 22	31 05	43 46	4 30
65 16	49 27	40 10	20 01	29 00	6 04 W.
61 16	64 47	42 28	13 27	24 47	7 40
54 57	104 32	27 38	36 53 N.	34 04	20 40
51 53	129 09	None Easterly.	39 34	28 36	20 40
48 40	139 55				

[*Note.*—As a whole, the above voyage is interesting. It has added one more to the many examples previously set by British seamen of patient and intrepid perseverance amidst the most discouraging difficulties; and the exertions used have not been without a certain reward. Two distinct discoveries have been made, at a great distance the one from the other; and each in the highest southern latitude, with very few exceptions, which has yet been attained, or in which land has yet been discovered. The probability seems thus to be revived of the existence of the great Southern Land, yet to be brought upon our charts, and possibly made subservient to the prosperity of our fisheries; so strongly, indeed, are Messrs. Enderby impressed with this probability, that undeterred by the heavy loss which they have incurred by the late voyage, they propose again sending out Captain Biscoe this season, on the same research. To encourage his future exertions, by paying a just tribute to the past, the Council of the Royal Geographical Society have awarded him their Royal Premium for 1832. And the Lords Commissioners of the Admiralty have resolved to send an officer of the Royal Navy, Mr. Rea, as passenger in his ship, to assist him in those scientific observations which, whatever may be the fate of the commercial speculation confided to him, will probably make his next voyage still more valuable than that now concluded. The expedition will sail in July.]

THE U. S. SHIP INDEPENDENCE IN RUSSIA.

By a correspondent of the Naval Magazine.

Our cruise thus far has been full of interest; after passing a month very agreeably in England, we had a delightful, though not very rapid run up the channel, the North Sea, Cattegat and Baltic.

Nothing can be more pleasing, than the navigation of these waters at this particular season of the year. In the clear skies, calm seas and temperate breezes that prevail, the navigator finds little to remind him of the tempests of the long northern winter. The Baltic particularly is most delightful at this season; you find it every where skirted by wooded shores, and studded with islands; its nearly fresh water being of a very bright and sparkling green, while the skies that canopy it, are scarcely inferior to our own in clearness and transparency. There was much, indeed, in the scenery and the atmosphere through which it was contemplated to remind us of our own country. The heats were much less intense— but, as yet, we have found no summer any where.

On entering the gulf of Finland we were soon reminded that we were in the waters of the Czar, by encountering a fleet of twelve or fourteen of his ships, chiefly those of the line. They made an uncommonly warlike and noble appearance. The models of the ships out of water were perfectly beautiful; their spars too, were well proportioned with sails setting extremely well. They were admirably well painted, and owing to their cruising in fresh water, their paint looked very clean and fresh. Having exchanged salutes with the Admiral, we passed on, and anchored the following morning at Cronstadt.

Immediately after breakfast a great movement was perceptible in the harbor. A three decker, one eighty gun ship, one or two frigates, and a dozen or more brigs, schoon-

ers and yachts got under weigh and stretched in and out of the harbor under a fine working breeze. A few miles up the Neva, in the neighborhood of the Emperor's palace of Peterhoff, where he was then residing, two fleets of miniature frigates, manned by the pupils of the naval school, were seen manœuvring and engaging each other in a sham sea fight. All this made a very brilliant spectacle, and we could not help thinking that if this were a fair specimen of the daily movement in the harbor of Cronstadt, Portsmouth, with its occasionally arriving or departing frigates and its stately yachts, must yield in the comparison.

We were afterwards led to think that this movement which proved to be unusual, might have been connected with our arrival and intended to impress us favorably, as it certainly did; for the vessels passing in rapid succession close under our stern were in the most perfect order. Perhaps it might have been occasioned by the sudden announcement of a visit of the Emperor to the port. It is said to be his pleasure to come unexpectedly upon his servants, and to express his disapprobation strongly if he finds them neglecting their business, or in any respect out of order. Hence the least intimation of his approach always hurries every ship in the port from her anchor, to perform evolutions in his presence and gives doubtless, in many instances, an exaggerated idea of the commander's activity.

It occurred to us that the Emperor's idea of coming upon his officers without a note of warning, was a most admirable one, insomuch as the chance of an unexpected visit to one or two vessels might keep a whole fleet perpetually on the alert. Still, however excellent this system might be, when applied to his own ships, we trusted that he would not think of coming on board of our's so unceremoniously. Especially would it have been inconvenient to us to have received a visit from the Emperor on the morning in question. We were, of course, desirous of appearing to advantage in the eyes of this warm friend of our country, and of exhibiting our really noble ship under circumstances not wholly unworthy of her. We had just arrived in the morning watch,

the time always employed in cleaning ship, and our topmast rigging was all adrift to be turned in afresh. Our men too having, most of them, been up the greater part of the night had a sadly jaded and unholyday appearance. When, however, we saw a richly gilded steamboat steering down the harbor with a large barge in tow, and on reaching a Danish frigate, which lay within us, putting an immense number of persons of apparently high rank on board of her, we began to discover that a visit from the Emperor, if he were indeed on board of the steamboat we had seen, was by no means improbable. No time, therefore, was lost in dressing our men in their mustering clothes with white trowsers and straw hats, and in cleaning the decks as well as circumstances admitted.

We had but little time to spare, for in a very few minutes the barge left the Danish frigate, and approached our ship in tow of the steamboat. The boat was crowded with persons covered with decorations, and a very tall man, wearing a white cap, stood at the helm. We were led to think, from hearing, that he occasionally wore a white cap, that this might be the Emperor. As the steamboat passed under our stern, the barge cast off and shot alongside. The personages whom she contained were announced as Prince Menzikoff, the Minister of Marine, and his suite; this suite embracing however Count Nesselrode, the Prime Minister, the most important personages of the court, and even the Emperor himself, who, on coming on board, strode forward among the men, and commenced questioning the boatswain, as to the number of our crew, and other matters connected with the equipment of the vessel. Rambling about quite unattended, he presently came to the quarter-deck, when he accosted one of the marines and examined his musket; and soon after went below, straggling about alone, or keeping on the outskirts of his party.

His whole appearance was exceedingly striking. He is upwards of six feet in height and uncommonly well made, his figure appearing to great advantage in the military frock coat, which he wore, with tight pantaloons fitting to a very

neat foot; his white cap, too, formed a remarkable and not unbecoming portion of his dress, as it rested on his full and polished brow, shading features of the greatest regularity. His nose is straight, his chin round and full, and his upper lip overhung by a very graceful mustachio. The whole air, manners, movement, and attitudes of the man marked him out as one of no ordinary station and character. Indeed we generally were of opinion that we had never seen a nobler looking person.

Though the Commodore was aware, from the first, that the Emperor of Russia was his visiter, he, with great tact, avoided giving him to understand that he was recognized, and attached himself particularly to Prince Menzikoff, who had been announced as the great man of the occasion, leaving the Emperor, who came in the simple character of aid-de-camp to the Prince, to take care of himself, which, as we afterwards learned, was precisely what he desired. When he had traversed the whole ship and fully satisfied his curiosity, he stole away quietly into the boat, where he took his station at the helm again, and true to the character in which he had come, took off his hat as Prince Menzikoff entered it, a circumstance which was afterwards alluded to, as a rare and ludicrous piece of condescention, by a veteran aid-de-camp in describing the visit.

When the imperial visiter had left the ship, the Commodore felt at liberty to testify the sense of the honor that had been done him, and the estimation in which the Emperor was held by our country, as its friend: he therefore had the yards manned and a salute of forty-one guns fired. We were afterwards told that when the yards were manned, and the salute commenced, the Emperor turned to the Prince and told him to see how the American Commodore was honoring him. As, however, the salute went on the Emperor could tell, by the number of guns, that it could be meant only for himself, a compliment for which he was wholly unprepared, having remained in happy ignorance of his being recognized. It only remained for him, detected as he was in his masquerade, to receive the compliment in good part,

which he did by immediately ordering the American Ensign to be hoisted at the main in his own steamboat, and making signal to a frigate that lay ahead of us, to return the salute.

The Dane now discovered the sort of personage he had entertained, and began also to salute. Upon this the Emperor hoisted his Imperial standard, a yellow flag having in the centre a black two-headed eagle, and immediately castles, batteries, ships at anchor, and ships under weigh commenced saluting until the whole harbor reverberated with a din which might have served as a specimen of a very respectable battle. We were all greatly struck with the noble air of the Emperor as he passed ahead of us in his steamboat, standing on the wheel-house and leaning against the railing, with an air of majestic ease. Indeed, there was much about him to convey the impression of a man not less elevated above those who surrounded him by character than by station. The Emperor Nicholas has the reputation of being a great man and there is much in his appearance to justify this reputation. He is said to be intelligent, active and laborious to excess; and, although exacting extreme exertion and fidelity from those employed under him, very kind in his intercourse with the humblest of them. In his domestic relations he is said to be a model of fidelity and affection.

We were gratified on hearing after the Emperor's visit how greatly he had been pleased with it. On the following day he sent a magnificent steamboat of twenty-four guns, to take the Commodore to Peterhoff, to dine with him. He received him very graciously, conversing much on the subject of our Navy, his gratification in seeing the ship, and his intention of sending officers to examine our dock yards. He also expressed his decided determination to have an efficient and formidable navy himself; a determination which he has already carried into effect. Indeed, it may fairly be doubted, whether we might not learn more from the naval system of Russia and profit more by imitating it, than she by the study of ours.

Not satisfied with these distinguished attentions to the

Commodore, the Emperor invited the officers generally, to visit his gardens at Peterhoff, and to attend the opera in the evening. He also gave orders to facilitate our seeing every thing worthy of attention in Petersburg, and even had officers in attendance, as we arrived in the steamboat, to welcome and aid us. Every officer in the ship took advantage of the opportunity of visiting a capital so celebrated for its magnificence.

My own impressions of Russia, such as I formed them in so rapid and unsatisfactory a visit to its capital, were sufficiently confused and contradictory. One seemed to find there closely united, the extremes of civilization and barbarity. The Emperor's light and graceful frigates, which are absolutely perfect in their appearance, do not differ more from the primitive arks which float down the Neva, or from the ludicrously shapeless and clumsy craft which arrive from the shores of the gulf, than do the highly educated classes that surround the throne, from the rude and bearded serfs, that one sees toiling to construct magnificent edifices, copied from those which have been admired in by gone centuries in Rome or Athens, but which, they themselves, are too barbarous to appreciate. It struck us, however, that if the lower classes, such as we saw them, were a degraded and ignorant race, they were not necessarily persecuted or miserable. None were starved, ragged or attenuated, and there was nothing of that profusion of famished beggars that one sees in some states, proud of their freedom and intelligence.

If we were not favorably struck with the personal appearance of the inhabitants of the Russian capital, there was but one feeling of admiration among us at its own magnificence. Every where we found spacious streets, enclosed by temples, palaces and public edifices of the noblest and most imposing construction. Even the meaner buildings, erected for shops and dwellings, were made to assume an architectural aspect, being in general uniform in their plan and materials. Many of them were built with arcades on the principal streets, affording in all weather a protected and much frequented promenade.

It is on the river, however, that the air of magnificence common to the whole of this truly splendid capital is most conspicuous. Every thing there assumes a noble and most imposing form, and I certainly no where remember to have seen so gorgeous an assemblage of grand and beautiful objects, created by human art, as in gazing from the windows of the palace where they overlook the Neva. The ample stream is, there, divided into two branches by a promontory, the extremity of which is decorated by rostral columns, commemorative of naval victories. Here, as every where along the banks of the stream and its branches, which are traversed by floating bridges, rise stately edifices connected with commerce, education or public benevolence, interspersed with palaces of vast extent, and temples of Grecian and Eastern architecture, the domes being not unfrequently gilded or dotted with stars upon a blue surface. The most remarkable of these temples is that of St. Peter and St. Paul, in which repose the remains of the Emperors, surrounded by trophies taken in war, with the various nations which surround this vast empire. It stands upon an island, and, still further to secure it from that popular fury, which in other lands has scattered the dust of princes to the winds, is enclosed by a strong fortification and garrisoned by veteran troops, some of whom are the fit guardians of the temple and its trophies.

The whole scene from the palace window reminded me of nothing so much as of those gorgeous compositions, with which painters decorate the curtains of theatres, collecting and harmonizing countless noble objects, such as doubtless can no where be seen realized, but upon the banks of the Neva. Not the least interesting association in the scene is the fact that it also embraces the humble hut, which Peter the Great first erected and inhabited upon the site of his future capital. It commands the proudest array of noble objects that the world can afford, and which serve to furnish the fittest monument to that creative genius, which, not only suddenly raised a vast, but barbarous empire to the dignity of a civilized state, and converted this once desolate and untracked swamp into so brilliant a capital.

In taking leave of Russia, my feelings had more in them of admiration than of love. I was glad to have had an opportunity of seeing so brilliant a portion of her vast territory, yet felt as if I should find no particular pleasure in returning, and still less in the prospect of a longer stay. I could not, however, avoid, as no visiter can, admiring with something of a feeling of awe, the marvellous process by which Russia has become the most formidable nation in the world. That process has been the sudden appropriation to herself of the results of civilization in other countries, and the subjection of barbarous masses, with no other virtues than obedience and bravery, to the despotism of one enlightened will. In teaching those who have every thing to learn, there was, however, at least the advantage that there were no preconceived errors to be overcome: there was, at all events, nothing to unlearn. It was only necessary, in every part of the public administration, to establish a system, embracing whatever was best in the systems of other countries, and to compel compliance with it. Thus, in the administration of her Navy, Russia has carefully studied the naval systems of England, France, and of our own country, and, by taking from each what was at once best and most suited to her own situation, she has combined a system of her own, with reference to her circumstances, beyond a doubt, in its conception and carrying out, the most perfect that exists.

This formidable power, destined doubtless to take a distinguished part in the future naval wars of Europe, consists of 38 ships of the line and 31 frigates besides sloops and small craft, manned by 47,000 men, divided into equipages of a 1000 each, a ship of the line and frigate being generally assigned to each equipage. Of this force, 27 ships and 18 frigates belong to the Baltic fleet, 11 ships and 13 frigates to that of the Black Sea. These equipages, embrace the whole *personnel* of the Navy including ship carpenters, smiths and artificers of every description. During seven months of the year, they are engaged in the construction and repairs of ships; as the fine season approaches the fleets are fitted for sea, and, during five months, the crews

are subjected to a perpetual course of exercise in every thing that belongs to the naval profession. They get under weigh, manœuvre, engage in sham battles, fire at targets, shift topsails, topmasts and topsail yards by signal, and do every thing that can possibly be necessary in battle or at sea. On this account their ships are, at all times, ready for any service or any accident. They are also thus acquainted, by frequent experience, with the best and quickest method of performing various essential evolutions, which are not of frequent occurrence in time of peace.

Every thing, too, about the fighting department is kept in perfect readiness. The guns well sighted, the locks of the most approved description, and every thing at all times at hand. Every operation in all their ships is done in one established way, and that way—the determination of which has, like every thing in Russia, been the result of imitation and comparison—of course the best and shortest. Thus, men who are not seamen by inclination, or their own will, are enabled, by a well established system, to perform every evolution required of ships in a skilful and seamanlike manner.

The officers are carefully taught every particular of their profession, both in theory and practice, at the Naval Academy. During the years of their probation, they perform, habitually, every part of a seaman's and gunner's duty, with their own hands. They are also taught engineering and whatever belongs to the soldier's art; for these equipages are also, if necessary, marching regiments. A large number of them garrison the town of Cronstadt, having their barracks in a series of edifices, constructed round the town and forming its parapet wall. This uniting the character of soldier and sailor, which is taken from the French Navy, to which that of Russia is most similar, is not perhaps the best part of the system. If the Emperor were to abolish this feature, and make the sailor simply a sailor, retaining however the double character of artificer and seaman—which may be highly useful at sea—and then reduce the number of his men, sufficiently to have his whole force, what-

ever it might be, in almost constant employment at sea, increasing the ordinary duration of their cruises from five months to two years, he would render his navy far more formidable. His ships would be better suited than they are to resist the effects of wintry and tempestuous seas; his officers and seamen would become more thoroughly practised and skilful, and the numbers could always be readily increased by an infusion of new recruits, leaving the whole fleet more formidable than under the present system.

The recruits for the Russian Navy are taken from the general conscription for the public service, without reference to their being inhabitants of the interior or of the coast. The only difference is, that they are allowed to volunteer for the Navy: and this one act of volunteering is the only solecism of the sort known in Russia. They serve for twenty-one years, and if kept more on the open ocean, and with prolonged cruising, they must become as perfect men of war seamen, as any to be found. The sailors of the Russian Navy are generally stout, sinewy, and athletic; they appear to be well-worked and in no danger of foundering from high feeding. They are grave but not melancholy in their appearance; they do not seem much given to conversation or nautical jokes, and, like Russians in general, never by any accident laugh. I did not see a man laugh or a boy play, during the whole of my four or five days ramble on shore.

The dress of these sailors, in summer, consists of white shirts, and trowsers, boots, a flat cloth cap and a large overcoat descending to the heels, such as is worn by the soldiers. This garment serves to hide an immense deal of uncleanliness. Though their ships were very clean, the men were quite the reverse. One day's washing of clothes, in our ship, exceeded all the display of this description made by the whole of the Russian ships together, during the time that we lay at Cronstadt.

The feeling of astonishment, occasioned by the surprisingly perfect condition of this navy of a country, unknown to the world as a commercial power, was universal among

our officers. Scarcely one of us had ever before seen a Russian ship of war, and here was a vast fleet, apparently complete in all respects, and ready for any service. Yet all this had its origin in despotism; it was melancholy to us, as republicans, to discover that any thing, originating in despotism, could be better than the fruits of liberty. Yet we were constrained to admit that Russia, without commercial Marine, and without natural adaptation to the sea, had a better organized, as well as infinitely more formidable navy than ourselves. Here every thing seemed done to improve, to perfect, and to systematize. With us, every thing is left to itself, and improvement not merely neglected, but too often resisted. We never settle down on any given data: we are all adrift, now, with every prospect of remaining so.

In Russia the Minister of Marine is selected with the most sedulous care; he is appointed, simply and solely, because he is the fittest man that can be found for the station he is to occupy; because he has already signalized himself by an attachment to its interests, by a sense of its importance, and by an enthusiasm in favor of its advancement and glory. He surrounds himself with skilful and laborious coadjutors, and studies only how he can best profit the purpose of his appointment, by seeking, by every means, to improve and perfect the Navy entrusted to his care. The consequences are before the world; and, in the event of another war, it would not be surprising if the Navy of Russia were to be able to read a lesson to those from whom she has borrowed every thing.

REPLY OF G. W. FEATHERSTONHAUGH, ESQ. U. S. GEOLOGIST TO PROFESSOR W. W. MATHER.

A communication has just been received from G. W. Featherstonhaugh Esq, in reference to a review in our September Number, to which, in justice to that gentleman we promptly give place.

In an accompanying letter to the Editor, under the date of October the 25th, he says, "yesterday, I saw for the first time since my return to the seat of Government, the September number of the Naval Magazine for 1837, and read the article entitled Review of Recent Geological Reports," and animadverting with severity upon the tenor of the Review and the motives of the writer, especially directs attention to the following extract, which, with the statement of Professor Mather embodied in the article, he denounces as "*malicious and false libels.*"

The following extract, from page 488 of the Magazine, is that to which he refers—"the individual calling himself, such (U. S. Geologist) is not honored with any commission from the Federal Government. He is a creature of the Topographical Bureau employed at a per diem salary—and holding his appointment under the head of that Bureau. His styling himself U. S. Geologist is a deliberate attempt to impose upon the public, and to palm himself off for what he is not."

Mr. Featherstonhaugh complains, that this publication was made while he was in a distant part of the continent, occupied in the service of a country in the promotion of whose interests, he says, "I have been actively engaged for more than thirty years;" and further states, that by a reference to the War Department it might have been ascertained, that the only commission he had ever held is direct from the Secretary of War, and that that Commission entitles him to call himself, even "*Principal Geologist*"—as will be perceived by Lieut. Col. Abert's statement, incorporated in this article—

"but for reasons suggested by feelings, which ought to be appreciated by others, he has upon no occasion used that designation, content with the sufficiently distinguished one (U. S. Geologist,) by which he has at all times been officially addressed."

"I can state," he proceeds, "with the same truth, that I have upon no occasion sought to give offence to any one: that I had been solely occupied with my arduous duty, seeking to do justice to the interests and scientific reputation of the United States, to the utmost in my power; fearing no dangers, difficulties, or fatigues," &c, &c., and calls upon us to publish his correspondence with Col. Abert, which with his vindication from the charges of Professor Mather, form the continuation of this article.

It is due to the author of the able "Review of recent Geological Reports" that we should state, that his remoteness from the place of publication, prevented all correction by him of the proof sheets—of which he was most solicitous. They were transmitted to him by mail, but unfortunately never reached him. He is therefore in no way responsible for verbal inaccuracies, some of which are certainly very gross: such as "coneller" for "lamellar" and which must be ascribed wholly to the ignorance of the compositors, who either did not understand the subject, or neglected the corrections most diligently made by a gentleman who supervised the proof.*

It is further due to ourselves to state, that the very para-

* The most material of these errata are here annexed with the request that those who have read that Article, will make the corrections indicated.

			Page	line top	from bottom
For	"field"	read fields	474	"	16
"	"cocena"	" eocene	475	19	
"	"yon"	" your	478	7	
"	"seas"	" sea	"	"	
	omit all after "title" and before "and" in p.		486		6
"	"put his name under the title of the map" say *constructed* by G. W. Featherstonhaugh		486		3&2
"	"those notes"	read it	487	9	

graph in page 488, so offensive to Mr. Featherstonhaugh, was so amended, and assuaged in its personal asperities, that if it had been correctly printed, it would have worn a different aspect.

The Naval Magazine, in its whole career, has sought studiously to avoid the introduction of personalities into its columns, and has never tolerated a spirit of the kind, further than was incidental to the strict investigation and development of truth; nor in reference to mere individual character, but for the correct exhibition of facts in any department of science or general knowledge. If individuals became involved in such a controversy, the fact was merely incidental to the main object.

It was in this spirit, that by the request of Professor Mather, his statement was admitted into its columns with his own signature, avouched by his very respectable position and employment, as a member of the Corps for the General Scientific Survey of the State of New-York, now progressing. For the same reasons we publish the vindication of Mr. Featherstonhaugh; and as we sought, but were inadvertently defeated in the effort, to expunge from the review such parts as were directly personal, we take the same liberty in omitting such parts of Mr. Featherstonhaugh's letter to the Editor, and his "Remarks," as are not essential

			page	line top	from bottom
for	"them"	read the notes of that	487	10	
"	"Consols"	read sales of "ores" etc. from the consol. and other mines	491		5
"	"unbosomed"	read embosomed	493		18
"	"report"	" repeat	496	14	
"	"when"	" where	500	5	
"	"connellor	" lamellar	500	10	
"	"views"	" veins	"	17	
"	"plane"	" flaw	501	8	
"	"for	" and	502	10	
"	"its	" it in	503	2	
"	"for"	" force	"		7

There are other errors such as "basalto" for basalts "were" and "was" for are and is, and the like which being obvious, the reader has no doubt, detected and corrected for himself.

to his defence, but only calculated to inflame personal resentment; at the same time, expressing our regret that the position in which Mr. Featherstonhaugh has been placed, by Professor Mather, compels us to introduce so much of mere personal matter in his reply. Our only object is to render strict justice to all parties, and we shall always be found most ready and desirous of rendering the meed of just pretention and superiority to whoever may deserve it.

Letter from G. W. Featherstonhaugh, Esq. to Lieut. Col. Abert. &c.

Washington Oct. 21st. 1837.

SIR—ON my recent return to the Seat of Government, my attention was brought by a friend to a libelous accusation against myself, which, during my absence, was inserted in a number of the Naval Magazine, and a copy of which I have the honor of enclosing. I understand also it has been copied into different news-papers.

The principal alleged facts of this libelous accusation can only be fairly tested, at the Topographical Bureau, of which you are the Chief, since they relate to acts entirely official.

I have to ask of your justice an impartial statement respecting the charge of my appropriating the labors of Mr. W. W. Mather, in the alleged case of the map and notes, together with the other charge, that I have assumed a designation which does not belong to me.

If I were conscious that there existed the least foundation for any of the false assertions Mr. Mather most unadvisedly thought proper to abuse the public ear with, the least that I should merit would be, to be immediately dismissed from the honorable situation I have so long held under Government.

I remain Sir,

Your o'bt. Servant,

G. W. FEATHERSTONHAUGH.

U. S. Geologist.

(From the Naval Magazine for September, 1837.)

"MANY of the readers of the Naval Magazine, have probably seen the late Geological report of 'G. W. Featherstonhaugh, U. S. Geologist,' upon a geological tour to the Coteau des Prairies. There is no such office recognised as U. S. Geologist, a title assumed by Mr. Featherstonhaugh in consequence of his having been a daily employè on geological duties under the order of the Topographical Bureau, which is a sub-office of the war Department.

Mr. Featherstonhaugh and myself were associated under the orders of the Topographical Bureau, and were directed to make a geological survey of the country, between Green Bay and the Coteau des Prairies, and were called on for separate reports. While engaged on that survey, I made a sketch of the topography of the country adjacent to the St. Peter's river, and took the bearings and comparative lengths of all the bends, so as to form a map of all the meanderings of the stream, with a view to illustrate the minute, as well as general geology, by references from my report. Mr. F. had no share in the original preparation of the materials for this map. In his published report of that survey is a topographical map of the St. Peter's which he had plotted, from my original notes, by an officer in the Topographical Bureau, and it comes before the world as a map of the St. Peters "by G. W. Featherstonhaugh." It is a copy of mine on a smaller scale, except that he has extended the courses of the streams far beyond where we saw them, and put on it the topography of the Coteau des Prairies as he supposes it, for great distances north, west and south, of where we saw it. The public will now understand, not my surprise at the course pursued by Mr. G. W. Featherstonhaugh, for I am not surprised, but my indignation that he should thus appropriate a portion of my labors *without acknowledgement.*

Under such circumstances, I deem it a duty to myself and the scientific public, to denounce Mr. Featherstonhaugh to the world, for this, as one instance of his appropriating the labors of others to his own use without acknowledgement.

Signed W. W. MATHER.

Letter of Col. Abert to G. W. Featherstonhaugh.

Topographical Bureau, Washington, Oct. 24, 1837.

SIR,—I have the honor to acknowledge the receipt of your letter, of the 21st instant, enclosing a publication from the late Lieutenant W. W. Mather, in reference to which you request a statement from me.

On examining the publication, the following appear to be its principal points.

1st. That you (Mr. F.) have assumed the title of U. S. Geologist when there is no such office recognized by the Acts of Congress.

This is incorrect, you have not "assumed" the title,—it has always been bestowed upon you in all official communications, you being in fact the U. S. Geologist; and is a mere designation of your position and duties, analogous to that of "Commanding in Chief," "Chief Engineer," "Chief of the Topographical Bureau," "U. S. Civil Engineer," and many others, all of which are titles not known to our laws, but bestowed upon certain individuals, in official communications from the government, as designating positions and duties, and afterwards appended by those individuals to their names, as an acknowledgment of position and duties, giving no rank or authority which would not be equally possessed without it.

But to show the character of your office, as well as the authority under which it was created, I subjoin an extract from a letter to you from this Bureau, dated July 8th, 1834. "I am directed by the Honorable Secretary of war, to inform you, that you have been selected as Principal Geologist, to aid in carrying into effect, the directions of the law in relation to Geological and Mineralogical researches."

2d. That Mr. Mather and yourself "were associated under the orders of the Topographical Bureau, and were directed to make a Geological Survey of the country between Green Bay and the Coteau Des Prairies, and were called on for separate reports." Now the only inference from the foregoing is that in the instructions to Mr. Mather, he was associated as an equal on the duty, was directed to make a Geological Survey, and was called on for a separate report.

How he could make such assertions, in possession as he is of the instructions to him from this Bureau, is to me inconceivable.

His instructions bear date the 3rd of July, 1835, and were delivered to him in person in Washington. The following is the only paragraph in the same, involving his position on the duty. "You will repair to Green Bay Michigan Territory, to *aid* in the Geological and Mineralogical investigation to be made between that place and the Coteau Des Prairies, *in relation to which, you will receive and conform to, the instructions of* G. W. Featherstonhaugh, Esq."

Now it is most evident from the foregoing, that Mr. Mather was not associated on the duty, but that his position was unequivocally subordinate; it is equally evident that he received no instructions whatever from the Bureau directing him to make the survey; and also that so far from being called on to make a separate report, he was not required to make any.

When it is understood, that the foregoing quotation from a letter from this Bureau of the 3rd July 1835, constitutes the only instructions, under which Mr. Mather acted, except a paragraph or two in the same letter confined to matters of accounts, others will probably be as much surprised as I have been at the singularity of his publication.

After the party had returned to St Louis, and Mr. Mather was about to join his regiment, and had refused to make a report of his observations to you, he was then, and not till then, namely December 2d 1835, directed to make a report to the Bureau.

3rd. That the map of the St. Peter's which accompanies your report, was a copy of the one furnished by him, and which you have used without acknowledgment. His map of the St. Peter's, as he calls it, was a very loose and imperfect sketch of that River, without measurement of distances, these being merely estimated. The angles of the river were taken by a compass from the Boat. In compiling the map, this sketch was of course sent to the compiler, with other

matter in the Bureau, as Mr. M., was informed in a letter from me dated Feb. 26th, 1836, of which the following is an extract. "Your sketch of the St. Peter's was duly received and has been handed, with other matter in this office, to Mr. Featherstonhaugh, in order to enable him to compile a map to illustrate his Report".

The sketch was the property of the Government, and it had a right to dispose of it as it pleased; nor is it customary to acknowledge the authorship of such papers. This is done only for labored and accurate surveys. The Bureau has lately compiled a map of the Seat of war in Florida, in which advantage was taken of numerous sketches sent by officers on duty there, without acknowledging the authorship of one.

The greatest labor in matters of this kind, is in the compiling, and the compiler therefore deserves the credit of the work, especially if he is at the same time the actual observer of the country.

The only acknowledgment that could have been made with propriety, was to the Bureau, for the materials it furnished, among which was this sketch of Mr. Mather's. His notes were never delivered to you, nor his report, because Mr. Mather had desired that they should not be.

This remark brings to my mind another complaint that Mr. Mather has made against you, and which in justice to you, I will take this opportunity to explain. It is that you have not mentioned his name in your report.

When about completing your report, you called on me and stated that notwithstanding the inconsiderate course which Mr. Mather had pursued, you were yet desirous of presenting him in as favorable a light as you could, and you would therefore, include such paragraphs of his report as were reputable, either as extracts or in the form of an appendix, and that you would like to have the report for that purpose. I replied that you could not see it; that Mr. Mather had requested in a letter, that you should not have access to it, until after his or yours had been published. In consequence of which I had kept his report locked in a pri-

vate drawer, where it must remain until yours was published. You then remarked, that under such circumstances you would make no reference to him.

I am Sir,

respectfully your ob't servant,

J. J. ABERT,

To G. W. FEATHERSTONHAUGH, Esq. *Lieut. Col. T. Engrs.*

U. S. Geologist.

P. S. The correspondence between this office and Mr. Mather is open to the inspection of any one.

Remarks by G. W. Featherstonhaugh.

It will be perceived by those under whose notice this matter falls that Mr. W. W. Mather states:

1st. That I have improperly assumed a designation not conferred upon me. From this accusation the preceding statement of Lieut. Col. Abert releases me; and here I must observe that Mr. W. W. Mather had seen my original letters of appointment where I am so styled, was well aware it was the official form of addressing me, and knew he was uttering a falsehood.

2d. That he was *associated* with me on a geological survey, with instructions to make a separate report.

Lieut. Col. Abert's statement convicts him of attempting to impose another falsehood upon the public in relation to this.

3rd. He accuses me of appropriating his map and notes without acknowledgment.

The same statement equally convicts him of falsehood in this respect. It must be evident to every one that he knew he was uttering deliberate falsehoods in each of these cases.

In relation to his last charge, I hope, considering the nature of the provocation I have received, that I shall not be considered tedious if I enter into a short detail.

When I was about to leave Fort Snelling on my way to the sources of the St. Peter's, having had sufficient experi-

ence of Mr. W. W. Mather, to be quite sure that an assistant of such very limited information in practical geology and who wanted many essential requisites both for the safety and credit of the expedition, could be of no use to me, and proposed to detach him in a contrary direction to that in which I was proceeding, but he declined this, not wishing to be alone in the Indian country, and not, knowing how to employ him otherwise, I agreed to his taking the courses of the bends of the St. Peter's river whilst we were in my canoe, and lent him one of my compasses for the purpose.

When, subsequently, on my return to Washington it became necessary to annex a map to my report, I had various materials before me: my own Journal where my observations and notes, both on ascending and descending the St. Peter's were entered in much detail; Col. Long's previous route; and, among other things, Mr. W. W. Mather's sketch of the bends of the St. Peter's, which was delivered to me by Lieut. Col. Abert. This miserable production, which had never been called any thing but a sketch, even by Mr. Mather himself, when he transmitted it to the Topographical Bureau, was defective and grossly erroneous. It was without latitudinal or longitudinal lines: the localities in some instances were from thirty to forty miles out of place; several days' work were omitted to be plotted down; and the tributaries and their names, of the St. Peter's owing to his ignorance, alike of the French and Indian tongues, were a tissue of inextricable confusion and error. His sketch was therefore rejected as useless.

The map which accompanies my Report is indebted for its character as a map, to the skill of an accomplished draughtsman of the Topographical Bureau, Lieut. Washington Hood who projected and modelled it. I settled all the sketch-work, the geological characters, the localities, the positions of the numerous streams, and gave to each its true Indian name. it was an original and new chart, such as had never appeared of the St. Peter's, and I had a perfect right to affix my name to it, in reporting it to the Topographical Bureau. I annex in a note Lieut. Hood's certificate.*

*Lieut. Mather's sketch of the St. Peter's, transmitted by him to the

The various traits of character he disclosed during our Expedition had entirely deprived him of my confidence. He was directed to receive instructions from me and refused to obey them when received. His conduct was the more reprehensible, in this, because he applied to go on this service as my assistant, before I was acquainted with him, was refused on the ground of many years absence from his regiment, and owed it entirely to the interest, some friends induced me to make with the Commander in chief that he was ultimately permitted to join me: of this fact I annex in a note, Maj. General A. Mc Comb's certificate.* But, on my return I remembered but one thing; that I had been obliged to direct him to join his regiment at Fort Gibson in Arkanses, a post he was most reluctant to go to, and that he was separated from his wife and children. I never made any complaint against him, nor ever thought of doing so, and notwithstanding his uselessness on the expedition and his re-

Topographical Bureau, is not a map, being without latitudinal or longitudinal degrees. Upon examining the positions of some of his localities and comparing them with known latitudes observed by Mr. Calhoun in the time of Lieut. Col. Long's Expedition, they were found to be so erroneous that the sketch was not used. The difference of latitude by observation between the mouth of the St. Peter's and the mouth of the Blue Earth river is 47½ miles, by Lieut. Mather's sketch the difference is 77 miles. The other localities are equally out of place, and the same mistakes prevail as to longitude. I never saw any notes of Lieut. Mather's either geographical or geological, when by direction of Lieut. Col. Abert I projected Mr. Featherstonhaugh's map, entitled "A Reconnoisance of the Minnay Sotor Watapah, or St. Peter's River, to its sources."

Signed, WASHINGTON HOOD.

*CERTIFICATE.

IT is true, that in the early part of 1835, after applications made to me to permit Lieut. Mather to accompany Mr. Featherstonhaugh, U. S. Geologist, and which I refused on the ground of absence from his regiment for several years, I was afterwards induced, solely upon the recommendation of Mr. Featherstonhaugh, to reconsider my decision, and to consent to his being accompanied by Lieut. Mather, annexing as a condition that he should join his Regiment at Fort Gibson, as soon as the expedition should be terminated.

A. MACOMB.

peated misconduct, when my report was closing I told Lieut. Col. Abert I was desirous of noticing Lieut. Mather, and willing to incorporate any proper portion of any journal or document he might have sent to the Bureau, in my own report, or by way of appendix, if he thought proper to furnish me with it; when, Lieut. Col. Abert informed me that, he had been especially desired by Lt. Mather not to permit me to see what he had transmitted, until my own report had been handed in; upon which I told Lieut. Col. Abert that, on contemplation of the whole of Lieut. Mather's conduct, I should not mention him in my report at all.

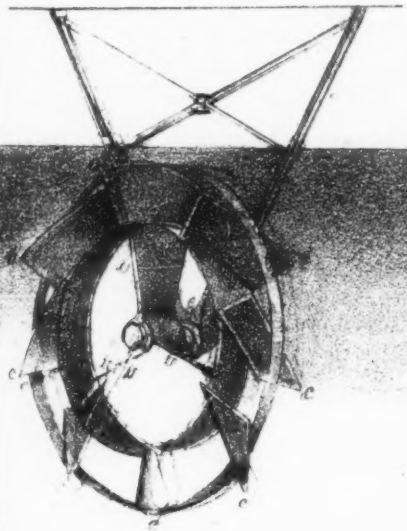
If the public knew Mr. W. W. Mather as thoroughly as I do, I should not have intruded any vindication of my conduct upon it; I should have treated his calumnies as it occurs to me frequently to treat some snakes, which hiss loud enough, but which I know have no fangs,—not permitting them to detain me from the pursuit of more worthy objects. But many of my friends have thought that I owed it as well to the Government, on whose service I am, as to public opinion, to prove that I am not the unworthy person I have been falsely represented to be, and I therefore, in accordance with their judgment, submit this refutation of each and singular of the charges of his malicious libel.

When he caused these calumnies to be published, he knew that I was in a distant part of the continent, exposed to various dangers. Had the melancholy fate of the late lamented Dr. Osborne of the U. S. Navy, who was killed by the upsetting of a stage, whilst I was on the same route, been mine, I ask—and, especially, of the very limited number of those conductors of the press, who appear to have cheerfully aided in the circulation of this libel—who was there who could sufficiently have cleansed my name from these foul aspersions. But my family and myself have to thank God that my life has been preserved. It is Mr. W. W. Mather, who has sown so much dishonor, who will have to reap the shameful harvest of it.

G. W. FEATHERSTONHAUGH.

ERICSSON'S

PERSPECTIVE VIEW of the PROPELLER.



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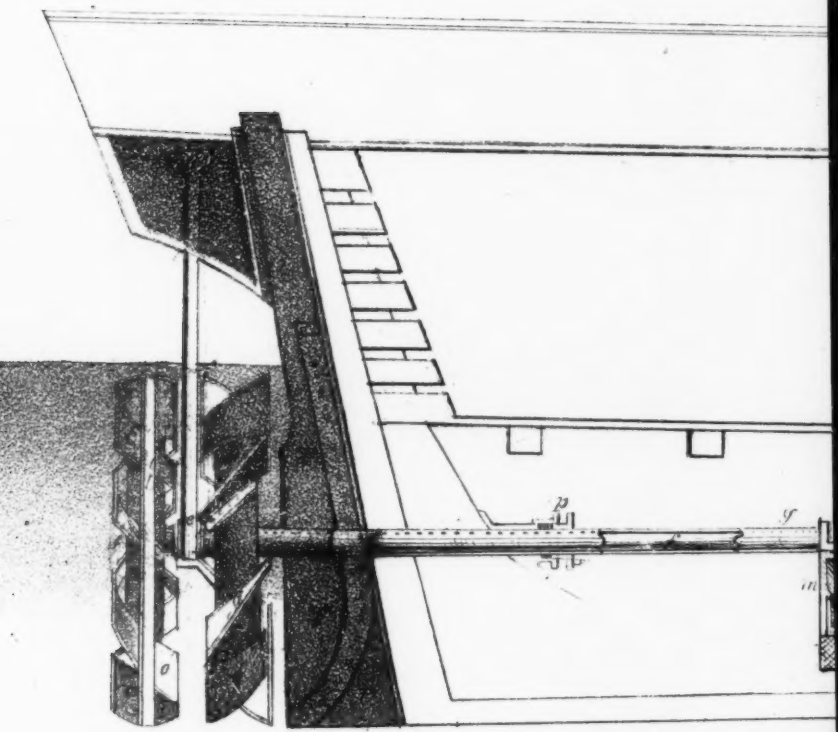
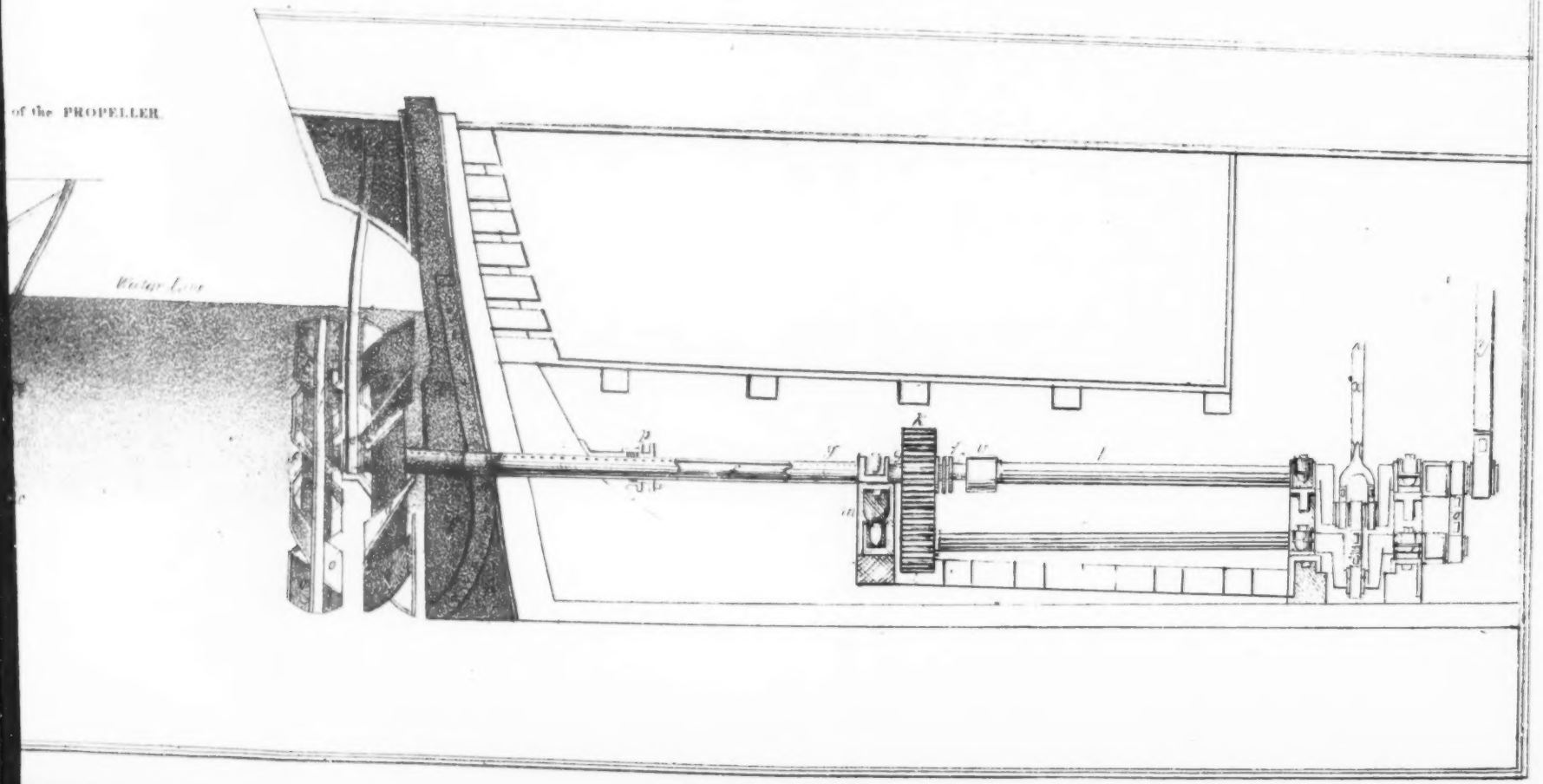


ERICSSON'S PATENT PROPELLER FOR STEAM BOATS.

LONGITUDINAL SECTION OF THE STERN OF A STEAM BOAT.



ERICSSON'S PATENT STEAM PROPELLER.

In laying before our readers a description of "Ericsson's Patent Propeller for steam-boats," we do it from a conviction that this ingenious engineer has discovered a most valuable improvement in the mode of propelling vessels by steam.—The inconvenience of propelling a vessel by a wheel entirely under water, and projecting through the stern post, seems very formidable, at first glance, but the very ingenious manner in which all the difficulties are obviated and the many advantages arising from this new plan, give it, in my opinion, a decided preference over the common "paddle-wheel," which is entirely dispensed with, and with it the huge and cumbrous guards and boxes which cover it.—It has not yet been tried in a large vessel; but on a small scale, it has even surpassed the most sanguine hopes of the inventor.

Mr. Ericsson has been indebted to the liberality of our worthy consul at Liverpool, Francis B. Ogden, Esq, for the means of making a fair trial of his invention, and also to his practical ingenuity for some useful improvements. If it succeeds on a large scale, as well as it has in the trials already made, it must create an entire revolution, in the mode of propelling by steam.

DESCRIPTION OF THE PROPELLER.

(*See Plate.*)

a and *b* are two short cylinders made of wrought iron of very slight substance, supported by spiral arms *u u u*, as shown in the perspective view. *c* and *d* are series of spiral planes or plates fixed to the cylinders in contrary directions. *g g g* is a hollow wrought iron shaft, passing through the stern post, and carrying the propeller *b*. *f f f*, is a shaft made of wrought iron or steel, carrying the propeller *a*: it works within a hollow shaft, with a sufficient space to prevent contact, except at the ends. *e e*, is a wrought iron

stay firmly fixed to the stern of the vessel for supporting the shafts and propellers. *t* is a thin broad hoop of steel or wrought iron, by which the spiral plates are kept more firmly in their places, but such hoop is not requisite in wheels under 6 or 7 feet in diameter. *h* and *i*, are wrought iron shafts provided with double cranks placed at right angles and connected by ordinary coupling links *n* and *o*.

v, is a coupling box, by which the shafts *f* and *h* are connected. *k* and *l* are two broad cog-wheels of *unequal* diameters, *k* being attached to the hollow shaft *g*; and *l*, (which is of less diameter) to the shaft *i*. *m m m*, are cast iron frames with plummer blocks for carrying the shafts and cranks. *p* and *q*, are stuffing boxes, the former being attached to the stern post, and the latter to the end of the hollow shaft *g*, in order to prevent any water from entering the vessel round the shafts.

The rudder being necessarily divided in two, to allow the working shafts to pass through the centre of the stern post, strong iron stays are bolted to it, one on each side, with bends or loops *s*, sufficiently wide to admit of a free action of the helm.

x and *y*, are ordinary connecting rods, which may be attached to Engines of various construction.

The action of the propeller will be readily understood. Supposing the Engines at work, it will be seen that the shafts *i* and *h*, as well as the shafts *f f f*, with the propeller *a*, must revolve in *one direction*, and that the shaft *g g g*, with the propeller *b*, must move in a *contrary direction*, the motion being changed by the cog-wheels *k* and *l*; it will also be seen that the position of the spiral planes, as represented by the engraving, will cause a resistance from the outside, when the crank-shaft *h* and *i*, revolve to the right; by this the vessel will be propelled forward: in like manner if the crank-shafts are made to revolve to the left the vessel will back. In the former case the wheel *a*, will of course have to move in a current produced by the motion of the wheel *b*, by which a considerable diminution of the effect would be occasioned; this is however obviated by moving

the wheel *a*, at a greater speed than the wheel *b*, this being effected by making the cog-wheel *k* of larger diameter than the cog-wheel *l*, as before described.

It need hardly be stated that no disadvantage will attend a partial immersion of the propeller; a small increase of speed in the engines being the only consequence.

It may easily be proved that any material improvement in steam navigation cannot be effected unless the paddle wheel is superseded by some propelling apparatus, constructed in accordance with the following conditions, viz. Firstly. That it admits of expansive action in the Engines at all times. Secondly. That the heeling of the vessel produced by a free use of the sails or a heavy sea, shall not impede or diminish its propelling properties. And Thirdly. That the power communicated to the propeller by the Engines, shall always give an equal propelling force to the vessel, notwithstanding any variation in the draught of water, whether produced by increase or diminution of cargo, pressure of sails, or a heavy sea.

These conditions being fulfilled, it becomes a matter of fact easily demonstrated that with only *one half of the quantity of fuel now required*, a steam boat may be propelled any given distance in much shorter time, on an average than at present, thereby producing a double advantage, besides rendering the steam boat thoroughly efficient and safe for sea-going purposes. The propeller under consideration possesses every quality contained in the above conditions, and it is in an eminent degree suited for expansive action in the Engines, since under no circumstances, can the resistance opposed to it be increased, though it may sometimes be diminished: a circumstance by no means prejudicial to expansive action.

An experimental steam boat 45 feet long 8½ feet beam (fitted with two high pressure engines, of 12 inches diameter, and 14 inches stroke) has been built for the express purpose of trying the new propeller, and a variety of experiments have been made, in the presence of several distin-

guished and eminent Nautical men and Engineers, all proving that the effect of the new propeller is considerably greater than that of the Paddle wheel: in other words, the resistance obtained by the new propeller is more perfect, and consequently its required velocity, as compared to the speed of the vessel, less than the velocity required by the Paddle wheel to produce an equal effect.

The result of the experiments which have been made, may be summed up in the following four leading facts.

1st. That a velocity of $9\frac{3}{4}$ miles per hour, was obtained with 84 revolutions of the propeller, the inclination of the spiral planes being 34 degrees, at the circumference with a gradual increase towards the centre. Now the circumference of the propeller being 16, 2 feet, and the inclination 34 degrees, it follows that if the water had not receded at all, the boat could only have been propelled 10,8 feet for each revolution of the propeller, or 907 feet per minute: but $9\frac{3}{4}$ miles per hour is 858 feet per minute, hence the loss of speed, only 49 out of 907, or less than $\frac{1}{18}$, thus showing a very great advantage over the common paddle wheel: the resistance being thus nearly perfect.

2nd. A ship registering 650 tons, (see annexed certificate,)* was towed at the rate of full $4\frac{1}{2}$ knots per hour or precisely 7 feet per second, with 60 revolutions per minute in the propeller: the ship drew at the time 14 feet 6 inches of water measuring 32 feet in the beam, the sectional area being upwards of 370 square feet under water. According to the dimensions before stated, it will be seen, that, had the resistance been perfect, the ship could only have gone at the rate of 648 feet per minute, instead of 420, thus showing a loss of only 228, out of 648, which comparing the immense mass propelled to the small bulk of the propeller

Packet Ship Toronto, in the Thames, 28th May, 1837.

* We feel pleasure in certifying that your experimental steam boat, the "Francis B. Ogden," has this morning towed our ship at the rate of $4\frac{1}{2}$ knots an hour, through the water and against the tide.

(Signed) E. NASHLY, Pilot.
H. R. HOVEY, Mate.

To Captain Ericsson.

(5 feet 2 inches diameter and 2 feet 3 inches wide) may justly be considered as an extraordinary achievement: the result being in a mechanical point of view interesting in the highest degree.

3d. A Lever acting on the principal of a Steelyard, but bent at the fulcrum, was applied on board the experimental boat, having its short end attached to a fixed point on shore, by means of a hawser, the other end of the Lever supporting a weight as usual. The Engines being then set to work the tension on the hawser, indicated by the Lever, proved that the propelling force increased exactly as the square of the velocity of the propeller. The tension on the hawser being upwards of 2,000 lbs. when the Engines worked at full speed.

4th. The inclination of the spiral planes having been changed to an angle averaging 43½ degrees for both series, it was found that 60 revolutions in the propeller, produced a speed of nearly 9½ miles an hour, or 836 feet per minute: (greater pressure of steam in the Engines being of course required than in the former experiment.) Now the inclination of the planes being 43½ degrees at the circumference, a speed of 895 feet per minute, could only have been produced had the resistance been perfect. thus showing a loss of speed of not more than 1-15th: at the same time establishing the important fact, that by increasing the inclination of the planes (more powerful Engines being of course required in that case) the speed of the vessel may be greatly increased, without increasing the speed in the propeller.

The chief advantages to be derived from the new propeller are as follows, viz.:

1st. A saving of power amounting to nearly one half, as compared to steam boats at present. will be effected by the almost perfect resistance obtained, together with the circumstance that from no cause whatever can that resistance be increased: hence expansive action applicable. The great waste of power occasioned by the action of the sea, on the paddle wheel being prevented by the new propeller, an additional saving will be effected in sea going vessels.

2nd. The new propeller is particularly applicable to Inland Navigation, which in consequence of the impossibility of passing Locks and other narrow places with steam boats, propelled by the ordinary paddle wheel, is at present deprived of the advantage, which the introduction of steam power cannot fail to insure.

3d. The new propeller occupying no space on the sides of the vessel, will in crowded Rivers like the Thames, effect a saving of space in itself of paramount importance; for one half of the width of the present channel would allow an equal number of steam boats, fitted with the new propeller, to pass as at present.

4th. The introduction of the new propeller, will also prevent the heavy swell produced by the Paddle-wheel: besides which, an advantage of serious importance will be derived, viz: the complete prevention of the frequent accidents of persons being drawn under the paddle wheels.

5th The action of the new propeller being perfectly uniform, the disagreeable vibration which is at present produced by the irregular motion of the paddles, will be obviated.

6th. Engines constructed to work this propeller, will be more steady in their action, and less distressing to the vessel than at present, in consequence of the driving shaft being placed near the bottom, the weight and size of Engine frames will also, on that account be reduced very considerably.

7th. This propeller may also be applied to the stern of ordinary sailing vessels, and worked by a small high pressure engine, to be used in calms or light winds, during which a rate of five knots an hour may be obtained with a very moderate expenditure of power: for the "Toronto" Packet Ship of 650 tons has been towed at the rate of 4½ knots, with two 12 inches cylinders, and 14 inches stroke, making only 60 revolutions per minute. On account of the extreme lightness of the propeller, (the one used for towing the Toronto, weighing only 615 lbs.) it may be made to ship and unship with great facility.

8th. For war purposes this propeller is of the greatest importance, since it works entirely under water, out of the reach of shot, with engines acting in the very bottom of the vessel: properties quite essential in a war steamer.

MYTHOLOGICAL FABLES.

An Epitome of Mythology, or the beauties of ancient fables, divested of every thing morally exceptionable, has long been a desideratum; not only for Female Academies, but for youths, whose taste for classic lore could not, heretofore, be indulged in, without danger to the imagination. Such a work I am happy to perceive has just been published by Dean, of Ann Street, entitled "Mythological Fables," translated from the Ancient Poets, and selected and arranged by Mrs. Charles Vanden Heuvel, of New-York. The arrangement is admirable; the story is prefixed to each fable in prose, and the Geographical and Mythological notes are valuable, and indispensable to a correct knowledge of the localities of the fables, as the moderns have conferred new names upon many of the anciently renowned places, in the Mediterranean and Archipelago.

The writings of many of the Ancient Poets find no place in our paternal libraries, or if they do, perchance it is by stealth, and are then stowed away in some dark corner and covered by an uninviting old news-paper, that they may lie undisturbed in their glory. I find no fault with this prudence; but, what a pity that a garden teeming with every species of beautiful flower, and bearing here and there mellowed and healthy fruit for the mental nourishment of man —but unfortunately, like other rich things, in the exuberance of its fertility, giving origin to matters noxious in themselves —the upas plants of morality—what a pity, that such

garden—the practical fables of the Ancients—should not have been entered long before this, and have been wed of its impurities, by a daring and discriminating hand! What moral cowardice to let the sweetest roses of ancient literature exhale their odor between senseless leaves, through a fear of pricking one's fingers in the plucking. But the timid and weak are, here, spared the danger, and may safely revel in the fruition of a talented and sensible woman's labor. The young and sensitive may, now, enjoy the very spirit of poetry and amusing fable, without fear of other than moral instruction.

"Classical poetry, without the knowledge of Mythology, is unintelligible" according to Miss Edgeworth, and every classical scholar will agree with her. Mrs. Vanden Heuvel, in her preface, says,—"A selection of Mythological Fables from the Metamorphoses of Ovid and other authors, is here presented to the public, in such a form, as will, it is thought, render it a desirable acquisition to the Library of youth. In making this selection, it has been found necessary frequently to alter expressions and to omit passages which were exceptionable, the ancient authors allowing themselves a latitude which is rejected by the purer taste of modern writers. The study of Mythology constitutes an indispensable part of a liberal education without a knowledge of which it is impossible to appreciate, or scarcely even to understand the works of many ancient authors, and particularly the poets, who have drawn from this fountain their copious supply of beautiful imagery and fanciful illusions. Painting and sculpture are equally indebted to this source for the greater portion of their subjects, and to one unimbued in its classical lore, the finest works of art are seldom interesting, and never understood."

This volume is worthy of an introduction into our common schools as a class-book, and most particularly would I recommend it as one fitting for the Library of a Man of War. In our ships libraries, we have much of the *utile* with the smallest possible quantity of the dulce—in this work both qualities are happily united.

Few midshipmen are classical scholars, they enter the

service at too early an age to possess more than the mere rudiments of a classical education. This, to them, is a misfortune only remedied by after study, or the careful perusal of those classical beauties, done into a language more familiar to them than Latin.

Many years ago, when I was a midshipman in the Mediterranean, I would have looked upon this little book as a treasure—a vade mecum beyond price—a friend that should accompany me in all my wanderings amidst the ruins of the temples of those gods and goddesses of whom it sings. Youngster like, I caught the disease of "writing to my friends," with the hope that some of my grand descriptions of great things and places might find their way into print. In this particular I was gratified, nay, *more* than gratified, I was *mortified*. Some ill-natured critic overhauled the "Letter from an intelligent young Officer," and exposed my ignorance of modern names and geography; and, because I had, by way of rounding off a period, remarked, "I have this day stood upon the very rock where stood *Polyphemus* when *Juno* plucked out his *eyes* and stuck them into her *peacock's tail*," the fellow laughed right out upon paper, and, by way of information, begged leave to say to the young middy, that "Polyphemus never had but *one eye*, and that was poked out, with a piece of charcoal, by a chap named Ulysses!"

Here was a dignified criticism for me—but he was right and I was wrong. I had travelled over the whole ground, and had now to submit myself to correction from a fellow who had never seen *Greece*, except upon the *dirty thumb spots of his own lexicon!* Ever afterwards, when having to do with the fabulous, I took care to refer to the Latin Phædrus or the Greek Lucian. As to my mythology—and I hereby humbly ask pardon of the gods and goddesses whom I so vilely slandered in my Epistles—I made the deities marry and intermarry, to the scandal of all Deistical and Canonical law. These were faults that might have been excused in a boy of unfinished education, but certainly not in a man, and that man a naval officer: one who, it is generally presumed, is,

or ought to be well versed, in polite literature. Yet I have known egregious mistakes made by officers, that, had such a work as the "Mythological Fables" been in their possession, would not have obtained. Every sloop of war should be furnished, by the Secretary of the Navy, with at least one dozen copies of this work, and larger ships in proportion. The berth-deck school would not long monopolize its benefits; it would soon work its way aft to the ward-room table, where, we well know, all good things are duly appreciated. In conclusion, I would tender my thanks to Mrs. Vanden Heuvel for the pleasure I have derived from an examination of the chaste and moral compilation—she has conferred a favor upon parents, and a great benefit upon youth in general; but in particular, upon the youth of our service, the nature of whose vocation brings them so frequently into contact with the lands of the gods, and the renowned scenes of ancient Poetry and Fable.*

M. G. D.

LINE OF BATTLE SHIP OHIO.

By a member of the Naval Lyceum.

This splendid ship, which has been recently re-built from the water's edge up, and fitted out, in such masterly style at our Navy Yard, under the direction of Commodore Ridgely,

* *Note by the Editor.* We take great pleasure in stating to our readers, that the volume by Mrs. Vanden Heuvel, thus favorably regarded by our Correspondent, in addition to the flattering notices of several periodical Papers and Reviews, has received the approbation and warm recommendation, as a school-book and desirable addition to a lady's library, of several of the most distinguished scholars of our country. Of the number we can mention Washington Irving, Esq., Chancellor Kent, President Duer, Hon. Gulian C. Verplanck, &c., &c.

has been taken to Boston under the command of Capt. Lawrence Kearney, and is now in the dry-dock at that station. It is gratifying to learn, that her lower works require much less repair than was expected from the circumstance of her having remained moored, in the Wallabout, for seventeen years after she was launched.

When the water was pumped out of the dock, her bottom was ascertained to be perfectly sound; but, from the unskillful manner of docking her—the blocks having been laid with nearly a foot crowning—it is feared, that she has been somewhat *hogged* in the process. As the keel was laid bare, it was discovered, that the centre blocks, which were made to sustain the whole weight of the ship, were crushed down, whilst the forward and after parts did not touch by several inches. A more ingenious contrivance to ruin the ship could not well have been devised; but, from her great strength, it is still hoped that she has shown the same *firmness* in resisting all attempts to interfere with her perfect model, that her constructor did while she was on the stocks.

It is to be regretted, that the ship could not have had her repairs completed without the necessity of leaving the New-York Yard, where naval construction and fitments of all kinds, are more neatly and substantially excuted than at any naval station in the United States. Appropriations have long since been made for the commencement of a dry-dock, here but, thus far, we see no hope of the construction of such an important and useful work. The line-of-battle ships, Washington and Franklin, are both at this yard requiring repairs, which can only be made in a dry-dock, and under existing circumstances, must be sent to other stations to be rebuilt. The expense of this, added to that of sending the Ohio to Boston, would nearly, if not entirely, pay for a dry-dock at this station.

There never has existed any good reason why a dock should not be constructed at this port; but, even admitting the objections made by some to the insufficient depth of water formerly found on the bar, for the passage of large

ships, the recent discoveries of Lieut. Gedney have now set that difficulty entirely at rest. The Ohio passed out through his new channel, carrying full thirty feet water, to which a foot must be added in consequence of the tide having fallen before she reached the bar. This is more than sufficient to float the largest ship that ever was built—what more is required? Here we will leave this subject, with the sincere hope that when another large ship may require a thorough repair, it may not be necessary to send her off to another station.

In the course of the passage of the Ohio from this port to Boston, from the report of the officers who sailed in her, she realized the fullest expectations of those who had so confidently predicted her good qualities as a sea-boat—fast sailer, &c. She proved to be perfectly easy in all her motions, steered like a pilot-boat, worked quickly, and sailed at the rate of 12 knots 7 fathoms, with a whole sails breeze, off the wind, and 10½ knots by the wind, under double-reefed top-sails. This was certainly a wonderful performance, when we consider that she had an old set of sails belonging to the Franklin 74, one full reef too small, and that her copper was quite foul—as may reasonably be supposed from the circumstance of its never having been touched in seventeen years. Added to this rapidity of sailing, she possesses the advantages over all other ships of her class in our navy, of a lighter draught of water, and more room on her decks to fight her guns.

It is impossible for a seaman to look at her for a moment, without acknowledging her to be one of the most beautiful ships that ever floated; and we sincerely congratulate the navy and the nation, that she has been reserved from lingering, but certain destruction, by the liberality of Congress in making a special appropriation for her repairs; for we truly believe, that she will now become the model from which all ships of her class will, hereafter, be constructed.

And, here, let us express our regret, from our sincere interest in the navy, that the same master hand which moulded

her, was not employed to superintend the construction of our entire navy. Had this been done, we now should have a collection of beautiful, fleet, and efficient ships of all classes, in lieu of the present Dutch Galliot looking things which, instead of keeping pace with the improvements of the day, carry us, at once, back to the days of De Ruyter and Van Tromp.

Any person desirous of seeing an exhibition of naval architecture of the present day, will do well to visit our Navy Yard at this time, where he will find some specimens of this noble art, in the form of Exploring vessels, which would rival the *most approved models* in the *Chinese* Navy. I hazard nothing, in saying, that such vessels never could have come into existence under the direction of such an architect as Henry Eckford. The same mind which modelled the Ohio, and those beautiful frigates which were built for the South Americans, could not, with all its ingenuity, have given birth to such deformities as the Pilot, the Pioneer, and the Consort. Well may the Sultan have exclaimed, when he witnessed the productions of Mr. Eckford's professional genius at Constantinople—"America must be overstocked with talent, if she can spare so great a man as Mr. Eckford!" But, she could not spare him—and he ought never to have been permitted to leave the country while the treasury was rich enough to command his services. Our Naval Reputation in future encounters may be the price of our folly in this respect. During our last war with Great Britain, our ships were superior in point of sailing to those of all other nations. Two of those ships are still in existence.—The Constitution and the United States—and notwithstanding the number of new vessels which have since been built, they are still the fleetest in the navy, and the *only two* which can cope with the improved models of the French and English architects.

These frigates were built in the year 1797. What then has been the improvement in our ship-building in forty years? The answer is simple. In the constructions of our merchant ships, the improvement has been astonishingly great.

They have combined speed with bulk, beauty with strength, comfort with economy, and added to all these, every safe and desirable quality which a sea-going vessel can possess, whereas in the navy, with one or two exceptions, we have as rapidly retrograded in almost every particular except strength, to which every other consideration is made a sacrifice, and so long as the present order of things continues we fear we never shall advance. We hope, however, when the Ohio's qualities are more fully developed, and forced on the attention of those under whose care the Navy is growing up, that a new system of things may arise, and that our officers may once more have the pride and satisfaction of finding themselves on board ships which can get out of the way of such as are too heavy for them, and overhaul those of equal or inferior force.

MISCELLANY.

DIMENSIONS OF THE U. S. SHIP OHIO.

The following are the principal dimensions of the Ohio, her spars, sails, &c., which may be of interest to our naval readers.

	Ft.	In.
Length between perpendiculars	198	
Beam moulded	54	
Depth of hold, from upper side of timber to upper side of orlop deck	15	
From top of orlop deck to top of lower gun deck	7	5
From top of lower gun deck to top of upper gun deck	7	7
From top of upper gun deck to top of spar deck	7	3½
From base line to top of timbers	2	7
From spar deck beams to top of rail	5	1
Depth from base line to top of rail	45	
Rake of stern post		8
Rake of Stem	32	
Length of orlop deck	192	8
Breadth	49	8
Lower gun deck in length	194	6
Breadth	51	2
Length of upper gun deck	199	1
Breadth	50	8
Length of spar deck	208	8½
Breadth	49	6
Extreme Breadth	55	6
Thickness of deck plank		4½
Length from figure head to out side of tafferel	226	2
Height from bottom of keel to top of rail of midships	48	6
Distance between the ports	7	8
Height of ports	2	9
Breadth	3	4
Lower gun deck ports in number	34	
Upper gun deck do. do.	36	
Spar deck ports do. do.	36	

	Ft.	In.
Whole length of keel	175	6
Tonnage. Carpenter's measurement 2542 52–95 tons.		
Draft with 200 tons ballast on board, forward	15	2
aft	19	4
Displacement 2170 tons		
Deduct ballast 210 "		
Displacement at launching draft 1960 "		
Height of lower midship port sill when loaded	6	
Above water as near as I can judge the draft of the water when loaded will probably be, forward	24	
aft	25	
Displacement at this line 3952 tons		
Deduct displacement at launching draft 1960		
Actual tonnage 1992		
Displacement of 1 inch at light draft 17 tons		
Do. Do. at load line 22 do.		

It is estimated that the three lower masts and bowsprit including Trusseltrees and cap will weigh 80 tons.

MASTS AND SPARS.

	Length Ft.	In.	Diam. In	Mast hds. Ft.	In.
Main mast	124	6	40	20	
Do. Top mast	70		21½	12	
Do. Top gallant mast	41		12	6	
Do. Royal mast	24		9½	1	
Do. Flag pole	16				
Fore mast	115		36½	18	
Do. Top mast	63		21½	10	6
Top gallant mast	37	6	12	5	6
Royal mast	22		8 3-4		
Do. flag pole	10				
Mizen mast	105		26½	16	
Do. Top mast	55		16½	9	
Do. Top galaint mast	33	6	9½	4	6
Do. Royal mast	20		7		

	Ft.	Yard In.		Arms. Ft.	In.
Do. Flag pole	8	6			
Main yard	107	6	23½	5	
Do. Top sail yard	78		17½	6	6
Do. Top gallant yard	52		10½	2	
Do. Royal Yard	36		7	1	6
Fore Yard	96		21½	5	
Do. Top sail yard	71		16	6	
Do. Top gallant yard	46		9½	2	
Do. Royal yard	32		6½	1	6
Cross jack yard	80		16	7	6
Mizen Top sail yard	52		11	4	
Do. Top Gallant yard	33		6½	1	6
Do. Royal yard	23		4½	1	
Sprit sail yard	52		11	4	
Bowsprit	78		37		
Jib boom	60		16½		
Flying jib boom	61		10 1-2		
Height from water line to main truck	225				
Height from water line to fore truck	204	6			
Height from water line to mizen truck	195	6			
Length from knight heads to end of flying jib boom	113				

SAILS.

	Yd.	No.
Main course	1440	1
Do. top sail	1520	1
Do. top gallant sail	420	3
Do. royal	220	5
Fore course	1100	1
Do. top sail	1260	1
Do. top gallant sail	380	3
Do. royal	160	5
Mizen top sail	760	1
Do. top gallant sail	200	3
Do. royal	80	5
Spanker	400	2
Main spencer	600	1
Fore spencer	520	1
Do. storm stay sail	240	1
Do. top mast stay sail	260	1
Jib	660	2
Flying jib	380	2
Main top mast stay sail	320	4
Middle stay sail	280	4
Lower top gallent	220	4
Upper ditto.	140	4
Royal	90	6
Lower studding sail 2	1080	5
Foretopmast studding sails 2	890	5
Fore top gallant do. do. 2	440	6
Fore Royal do. do. 2	140	7
Main top mast, do. do. 2	1050	5
Main top gallent do. do. 2	520	6
Main Royal do. do. 2	160	7
Fore sky sail	100	7
Main do. do.	140	7
Mizen	80	7
Quantity of canvas in one suit of sails within a fraction of two acres.	1624	

ODGDEN AND ERICSSON'S SOUNDING LEAD.

TO THE EDITOR OF THE NAVAL MAGAZINE.

Dear Sir,

In a former number of the Magazine, I made a short notice of Odgen and Ericsson's ingenious sounding instrument, giving the favorable testimony of several practical men who had used it.

Since then, in the course of a short cruise on the coast in the U. S. Brig Porpoise, we had a fair opportunity of testing its accuracy, and found it in all instances perfectly correct.

We used it in, from thirteen to thirty eight fathoms, and the last day of our absence, while running for this port, we obtained correct soundings in, from twenty six, gradually decreasing to fifteen fathoms, sailing at the rate of nine knots without heaving too or even deadening the brig's headway in the least. This was with the light lead, intended only for moderate depths; but with the largest size, I have no doubt but that soundings may easily be obtained in forty fathoms water, whilst going at the rate of ten or

eleven knots. The instrument itself, as before described, is so perfectly simple, that any of the men may be made to understand its use with a single explanation, and so accurate, that it must be adopted by all who will give it a trial. It not only saves the wear and tear of heaving to every hour while running toward the land, but it saves time and trouble, and in many instances, particularly in the brisk competition of our European packets, it will save the ship.

Very truly your ob't servant,

H. W. OGDEN.

U. S. Ship Hudson,
Navy Yard, N. Y., Nov. 20, 1837.

GEDNEY'S CHANNEL TO THE PORT OF NEW-YORK.

The Report to the Board of Aldermen, by M. C. Paterson, sets forth clearly the immense benefits to the city of New-York, of this new avenue from the Ocean.

Board of Aldermen, Nov. 20, 1837.

Report of the Select Committee to whom was referred the resolution touching the discovery of Gedney's Channel, and to take some suitable mode of expressing the deep sense of obligation which they in common with this community, feel towards the discoverer of the said channel. Laid on the table, and directed to be printed for the use of the members.

THOMAS BOLTON, Clerk.

Whereas, a new channel from this port to the sea, has lately been discovered, and its practicability demonstrated, and the same is a matter of primary and deep importance to this City and the whole State; therefore,

Resolved, That this Common Council (if the Board of Assistants concur) will take some suitable mode of expressing the deep sense of obligation which they, in common with this community, feel towards the discoverer of the said channel.

The Select Committee, to whom was referred the resolution of this Board, touching the discovery of Gedney's Channel,

REPORT,

That the discovery of a new and deep channel to the sea, from this port, has been demonstrated by the passage through it of the packet ship Roscoe, and the line of battle ship Ohio; that the same not only affords a more direct and shorter access to and from the ocean, but its entrance is practicable with winds with which heretofore this port could not be entered. The safety of lives and property is promoted by this discovery —the interest of commerce advanced —and the prosperity of this great entrepot of the State, increased and assured. But the local advantages to be derived by the City of New-York, however great, are not the only ones which enter into a just and extended view of this important subject. New-York, the queen of our western world, is destined shortly to be connected, by an extensive line of internal improvements, with the Ohio and the great valley of the Mississippi. Whatever benefits are to be derived from the rapid and safe interchange of commodities here, will be felt in every part of that immense and fertile region; and while it pours its rich products into our emporium, Buffalo as well as Cincinnati, Rochester as well as Chicago, will all reap the inappreciable benefits of this discovery.

Your Committee diligently inquired to whom the honor of this discovery was due, and for that purpose entered into a correspondence with those best able to give a sound and discriminating opinion. That correspondence is hereto annexed. Your Committee are entirely satisfied, though certain deep water had been marked on the charts of those active and enterprising hydrographers, the Messrs. Blunt, that the honor of the discovery of this new channel, which is now buoyed out, and used, is solely due to Lieut. Thomas R. Gedney of the U. S. Navy, and a citizen of South Carolina.

Your Committee believe they are only announcing a grateful duty imposed on this Common Council, when they state, that it is due to the position and liberality of this great

commercial metropolis, to mark their appreciation of this invaluable discovery, by conferring, in some proper way, honor upon its author. It is equally the dictate of a wise and enlightened policy, and of just and honorable sentiments towards public benefactors. Fortunately we are not without examples here and in other countries. In 1833, Lieut. Denham, in prosecuting an Admiralty survey of the bar of Liverpool, discovered a new and deeper channel into the Mersey, a circumstance of inealculable value to the commerce of that port. Lieutenant Denham received, in consequence of it, the freedom of the city, and was afterwards promoted by his Sovereign. The benefits to be derived by our merchants, our insurance offices, and all the interests of trade, from the discovery of our new channel, demand, in the opinion of the Committee, that equal honors and rewards should be conferred on Lieut. Gedney; and that we should convey to him an expression of the lively sense of gratitude and regard which this Corporation entertain for that officer. The Committee therefore offer the following resolution:

Resolved, That his Honor, the Mayor, with the concurrence of the Select Committee, present to Lieutenant Thomas R. Gedney, of the United States Navy, such testimonial as they may think proper, on behalf of this Corporation, and that one thousand dollars be, and are hereby appropriated therefor.

M. C. Paterson,
D. P. Ingraham,
G. W. Bruen.

To Commodore Ridgely.

New-York, Oct. 24, 1837.

Sir,—A proposition has been submitted to the Common Council of this city, to express to the discoverer of "Gedney's Channel," in some suitable form, their sense of the obligation which this community and the State at large owe to him, on account of the auspicious result of his invaluable labors.

Though I have no doubt as to the individual to whom this tribute may be due, yet it seems proper that the fact should be placed upon the records of the city, in an appropriate and formal manner. I have, therefore, with that view, taken the liberty, of addressing to you this note as the Commanding Officer of this Naval Station, and of inquiring of you, to whom the credit of the discovery of this channel may be justly due.

I have the honor to be, with great respect, Your ob't servant,

M. C. Paterson,
Chairman of Select Com., &c.

To M. C. Paterson, Esq., Chairman of the Select Committee of the Common Council New-York.

Navy Yard, New-York,
October 25, 1837.

Sir,—I have this day received your letter, as Chairman of the Select Committee of the Common Council of the City of New-York, wishing to be informed in a "formal manner," to whom the credit of the discovery of a new channel, called "Gedney's Channel," at the entrance of this port, should be given.

You are aware that the survey of the coast of our country, including soundings, head lands, bays, creeks, fulets, &c. &c., has been, for some time, in progress, by order of the Government, under the immediate superintendence of Mr. Hassler; and that several officers of the Navy have been assigned to him in the prosecution of this great national work. That part of the practical survey of the coast, from the east end of Long Island to the harbor of New York, including the East River to Hurl Gate, and North River to Tappan Bay, was assigned to Lieutenant Thomas R. Gedney, of the U. S. Navy, and a native of South Carolina. In the prosecution of these duties, *he* discovered this new and deep channel, which has taken his name, and to none other is the credit of the discovery due, and on none other can the intended tribute, by the Common Council, be justly bestowed.

I have the honor to be, with great respect, Your ob't servant,

C. G. Ridgely.

To Captains Kearney, Sloat, and Perry, U. S. N., Board of Officers for examining Light Houses and fixing Buoys and Beacons in the Harbor of New York.

New-York, Nov. 16, 1837.

Gentlemen,—I take the liberty of addressing you in regard to the discovery of the new channel from this port, and I am induced to do so, not only from your official position, but from your long and intimate acquaintance with our harbor.

I have to request you, in behalf of the Committee of the Board of Aldermen appointed on this subject, to inform me to whom, in your judgment, the credit of a discovery, so important in every point of view, may be justly attributed.

I have the honor to be, Gentlemen,
Your obt' humble servant,
M. C. PATERSON,
Chairman of the Select Committee on the subject of Gedney's Channel.

To M. C. Paterson, Esq., Chairman of the Select Committee, on the subject of Gedney's Channel, New-York.

New-York, Nov. 16, 1837.

Sir—We have had the honor to receive your communication of this date, and in reply to the inquiry, "*To whom, in our judgment, should be attributed the discovery of the new channels leading to this great commercial emporium,*" we unhesitatingly, and with the greatest satisfaction say, to Lieut. Thomas R. Gedney. Deep water to the east of Romer Shoal, is laid down in the chart of those well known and enterprising hydrographers, the Messrs. Blunt; but to the tracing out of the East Channel, for purposes of practical use, Lieutenant Gedney is, in our view, entitled to all the merit; and in regard to the Man-of-War Channel over the outer bar, he may lay equal claim to discovery.

In corroboration of these opinions, we may remark, that so far as we have been able to learn, the Roscoe Liverpool packet, Capt. Delano, and the Ohio line of battle ship, Capt. Kearney, were the first that ever passed through these respective channels; both, as we understand, conducted through, having pilots on board, by Lieut. Gedney.

We are, Sir, with great respect, your most obedient servants,
LAWRENCE KEARNEY,
JOHN D. SLOAT,
M. C. PERRY,
Captains U. S. Navy.

SHIPWRECK SOCIETY.

Communication from Count de Liancourt to Commodore Ridgely.

The following letter from the Count de Liancourt with the accompanying documents has been recently received by the President of the U. S. Naval Lyceum.

To Commodore Ridgely, President of the Naval Lyceum, &c., &c., New-York.

Paris, Aug. 12th, 1837.

SIR,—I have the honor to solicit you, in the name of the Consul General, to communicate to him any thing from the United States, and from New-York in particular, which may be interesting to the Society. (See the accompanying documents,) You will render an equal service to this important institution by addressing yourself to it, for any information you may desire, in regard to what is taking place in Europe, in reference to the means of preserving life, &c., in shipwreck.

With assurances of the highest consideration,
Yours, dear sir, &c., &c.,
GODDE DE LIANCOURT.

CIRCULAR LETTER OF THE SOCIETY.

SIR—I have the honor to enclose you the Statutes of the Shipwreck Society.

Public notoriety having designed you as a person worthy of co-operating in its philanthropic operations

the Society request you will allow your name to be enrolled as one of its Members.

To be the means (under Divine assistance) of saving our unfortunate fellow-creatures from a premature death cannot but demand the utmost exertion of every philanthropic mind; and it is the anxious hope of this Society that by uniting the exertions of individuals of all nations in so humane an enterprise, much may be done, not only in saving lives, but valuable property, so often irrecoverably lost for want of *immediate assistance*, succor, etc.; and thus be accomplished a duty we owe to our fellow-creatures, which has been so much desired, but too long fatally neglected.

In pursuit of these most desirable objects the Society has every reason to rely on your able assistance in co-operation with the honorable Members who compose it.

I have the honor to be, with the highest esteem, Sir,

Your most ob't servant,

DE LIANCOURT,

Sec. Gen. to the Society.

THE UNITED SOCIETY

OF

ALL NATIONS,

For the purpose of saving the lives of Shipwrecked Persons and their Property, with that of Commercial Traders;

Under the Patronage

OF

Their Majesties the King and Queen of the French,
The Queen Regent of Spain,
The Queen Dona Maria Da Gloria,
Her Royal Highness the Dutchess of Kent.

HONORARY PRESIDENTS:

Their Royal Highnesses
the Duke of Sussex,
the Prince De Joinville,
the Duke De Montpensier,
the Duke D'Aumale.

CONSTITUTIVE STATUTES.

The Object of the Society.

1. The Society is founded with a view of uniting the benevolent of all countries.

2. It embraces every species of means for the saving of lives in the case of shipwreck or inundations, and whatever concerns the commerce, industry, and science of nations.

3. The Society will form establishments in all the principal ports of the kingdom, and extend its operations to other countries according to the number of its subscribers, and will have a special agent at each of its establishments.

Prizes and Recompenses.

4. The Society proposes to award every year prizes in medals of gold, silver, and bronze; and pecuniary recompense to those who aid by their actions, efforts, or writings, the advancement and success of its labors.

Publications.

5. The Society will publish, at least once a month, an account of its actions relative to its operations in the cases of shipwreck, as also that of commerce, industry, literature, sciences and arts.

6. It will open a correspondence with all similar Societies, with all the learned bodies of the globe, and exchange publications.

7. The Society will furnish gratis its journal and memoirs to all its members.

Formation and Organization.

8. The Society to be composed of an indefinite number of members of all nations.

9. To become a member of the Society it is necessary to be presented by a member, or to solicit it by a letter addressed to the Secretary-General, and to give in an adhesion to the present statutes.

Subscriptions.

10. Each member to pay an annual subscription, with the exception of the seamen employed by the Society.

11. The Society having considerable expenses to incur, in establishing and constructing its material, will divide its members into five classes.

12. The first to be called "Class of Protectors," to be composed of Sovereigns and members of royal families, ministers of state, and those who pay to the Society 1,000 francs.

13. The second to be called "Class of Benefactors" who pay from 200 to 500 francs.

The names of the Protectors, and Benefactors will be inscribed on columns of their sections, surmounted by the national flag of each section.

14. The third, to be called "Associates" who pay an annual subscription of 20 francs.

15. The fourth to be called "Assistant Associates" who pay 6 francs annually, and receive the statements only every six months.

16. The fifth, to be called "The Seamen" who pay no subscription, but contract, as members of the Society (receiving a Diploma) an obligation to aid by their exertions whenever required, in cases of shipwreck, etc. etc.

Diplomas.

17. The Protectors will receive a diploma of parchment 50 fr

18. The Benefactors a diploma of do. 30 fr

19. The Associates a common diploma of 15 fr

20. The Assistant Associates a diploma of 6 fr

21. The Seamen a diploma of 3 fr

22. The prices of the diplomas will go towards the paying of the materials necessary for the Society, such as insubmergible boats, planks, rafts of timber, portable tents, complete beds, warm clothing, bathing-tubs, medicines, etc.

Note. The members of each division to address to the secretary general all interesting documents relating to ship wrecks, accidents to commerce, to the arts and sciences, etc. These documents will form the essential portion of the journal of the Society.

The Divisions.

23. The members will be divided into divisions according to the nation to which they belong.

24. Each division will have its presidents, vice-presidents and a secretary, chosen from amongst its members.

25. Every year, after the general meeting, the Society will publish a list of its members with their christian and surnames, their titles, rank, and profession.

President of the Society.

26. The president of the Society will preside at the General Assemblies, direct their debates, examine their statutes, and see that the rules are executed.

27. He is to have a direct authority over the actions and orders of the Secretary General.

28. He will have a double vote in case of a division.

Honorary Presidents.

29. The title of honorary president will be granted to those members only who have rendered services to the Society, or who may be useful by their influence or efforts.

The Council of Administration.

30. The Council of Administration will be composed of:

The President of the Society;

The President of the Council of Administration;

The Secretary-General;

The Director of rafts, life-boats, etc.;

The Director of Commercial, industrious, and scientific affairs;

The Assistant Secretary to the Secretary-General;

The Librarian and keeper of the records;

And ten Members chosen by the General Assembly.

The Council of the Administration to direct the general affairs of the Society, and to cheque the account of the receipts and expenses.

The Central Commission.

31. The Central Commission to be composed of:

The President of the Council of Administration, president;

Of the Secretary-General;

Of the Director of the rafts, life boats, etc.;

Of the Director of the commercial and scientific affairs;

And a President of one of the sections, taken in his turn from the list.

The central commission to direct the construction of boats, or rafts, etc., and the administration, industrious, scientific, and financial affairs of the Society.

To assemble at least once a week; the president to have the casting vote.

President of the central Commission.

32. The President of the Central Commission to convoke the General Assemblies, after consulting with the Secretary General.

He reviews the publications, and has a direct control over the financial affairs of the Society.

He regulates the works and orders of the day.

Secretary General.

33. The Secretary General is charged with the correspondence of the Society;

With the responsibility of the receipts and expenses, of which an account will be furnished every month;

To regulate the interior orders;

To nominate and revoke the men employed of every rank chosen for the good of the Society, in accordance with the president of the council of administration and the two directors.

He is the keeper of the seals of the Society, as also the established laws, and furnishes a guarantee of 25,000 francs.

Director of the Works.

34. The Director of the Works to have the direction of all that appertains to the construction of boats, rafts, or other means for the preservation of lives, the organization of the committees at the different seaports, to order and regulate all operations having for their object either to prevent or to repair the damages caused by shipwreck or inundations.

NOTE. Conformable to the maritime regulations, all ships and cargoes, wrecked, and which may be saved by the Society, will remain under the charge of the place where the marine age wrech has happened. (Vig.) The commissioners of the classes in France, and the consuls in foreign countries.

The Direction of Commerce and Science.

35. The director of the commercial, industrious and scientific affairs will be especially occupied with all commercial, industrious and scientific documents, capable of directly interesting the Society.

Of the duration of the election of the members of the central commission.

36. The President of the Society, the President of the Council of Administration, the Secretary General, the two Directors, are elected by the General Assembly of the Society for five years.

They have afterwards the right of honorary presidents of the Society, The diplomas will be signed by the President of the Society, the President of the Council of Administration, the Secretary General, and by the President of the foreign section, in the case where the member is a foreigner.

Funds.

37. The funds arising from subscriptions, donations, diplomas, etc., to be paid into the hands of the Society, or to its authorized agents, to be transmitted to the Bankers, and all payments for the use of the Society to be submitted to the Council of Administration, and the signature of

not less than three, only, can authorize their settlements.

General Orders.

38. There is to be no change in the present established statutes of the Society before the year 1840.

39. In the event of a dissolution the interests of the Society will be regulated by arbitrators.

Bankers.

40. Baron de Rothschild of Paris, and his correspondents, Bankers of all countries.

Paris, the 2d January, 1835.

IMPORTANT OBSERVATIONS.

The public meetings of the Society will be held at the Hotel-de-Ville, salle Saint Jean.

The office of the Society is established at Paris, Place Vendome, No. 16, where the ordinary meetings are held.

The members of the Society have the right of assisting at the meetings. Those of the Council of Administration are held, on the 3d Thursday of every month, at 7 o'clock in the evening.

The Society will receive with the greatest acknowledgements all models of boats or rafts, etc., the construction of which would be ordered immediately after an examination by the central commission.

Prizes proposed for the year 1836.

The Society proposes a prize of 800 frs., and a second of 600 in favor of the two best memoirs upon the means of saving of lives in the case of shipwreck and inundations, these works to be accompanied by drawings, and addressed to the Secretary General's office, Place Vendome, No. 16, before the 10th November, 1836.

Payments may be made

Of not less than 200 frs, to the Banker of the Society.

All smaller sums, either to the Secretary General, or to the authorized agent of the Society.

The annual subscriptions to be paid in full into the funds of the Society in the months of January, July, and August.

Letters, and parcels, etc., intended for the Society, to be addressed post paid and free of carriage to Secretary General, No. 16, Place Vendome.

The Secretary General will receive all members of the Society every Thursday at 8 o'clock in the evening.

A general list of the members will be soon published.

COUNT GODDE DE LIANCOURT,
Founder and Secretary General.

MARRIAGES.

On the 4th of September, at Burlington, N. J. by the Right Rev'd. Bishop Doane, Captain John Thomas Newton, of the U. S. Navy, to Adela De Lancey, daughter of the late Ralph Izzard of South Carolina.

On the 5th of September, at the residence of Lieut. Joshua R. Sands, Hoboken, N. J. by the Rev'd. Mr. Ward, Rodman M. Price, to Matilda C. eldest daughter of the late Captain Edward Trenchard of the U. S. Navy.

At Pensacola, on the 28th of September, James K. Bowie of the U. S. Navy, to Miss Cecelia Collins, youngest daughter of A. Collins, Esq, of that city.

At Bordentown, N. J. on the 24th of September, by the Rev'd. Mr. Harrison, Captain Edward R. McCall, of the U. S. Navy, to Miss Eliza Hardenberger.

In Baltimore, on the 30th of September, Captain Philemon Gatewood, of the Revenue Cutter service, to Miss Kittura Mezick.

In Washington, D. C. on the 4th of October, Dr. Charles E. Hassler, Assistant Surgeon in the U. S. Navy, to Miss Anna Josepha Nourse, youngest daughter of Col. M. Nourse of Washington,

In Baltimore, on the 5th of October, James Carroll, Jun., to Mary Wethered, daughter of the late R. C. Ludlow, Esq, Purser in the U. S. Navy.

In Baltimore, on on the 12th of October, Daniel B. Ridgely of the U. S. Navy, to Johanna M. daughter of the late John Clemm, Esq, of that city.

At Philadelphia, on the 12th of October, Francis B. Stockton, Esq., Purser in the U. S. Navy, to Anna P. Clapp, daughter of the late Captain James McKnight, of the U. S. Marine Corps.

In Boston, John A. Winslow, of the U. S. Navy, to Miss Catharine Amelia, daughter of Benjamin Winslow, Esq., of that city.

DEATHS.

At Terre Haute, Indiana, on the 28th of August, in the 28th year of her age, Mrs. Hannah S. Wood, wife of Dr. Wm. M. Wood, of the U. S. Navy and daughter of Geo. W. More, of Baltimore.

In Norfolk, on the 9th of September, Alice Imogene, infant daughter of Otway H. Berryman, of the U. S. Navy.

On the 5th of October, near Bainbridge, Georgia, by the overturning of a stage-coach, Dr. Leonard Osborne, Surgeon in the U. S. Navy.

In Baltimore, on the 19th of October, at the residence of Captain Joseph J. Nicholson, of the U. S. Navy, Antonia C. Nicholson, daughter of the late Captain John Nicholson, of the Revolutionary Navy.

POETRY.

From the Louisville Journal.

THE SEA-SHELL.

Shell of the bright sea-waves!
What is it that we hear in thy sad moan?
Is this unceasing music all thine own?
Lute of the ocean caves!

Or, does some spirit dwell
In the deep windings of thy chamber dim,
Breathing for ever in its mournful hymn
Of ocean's anthem swell!

Wert thou a murmurer long
In crystal palaces beneath the seas,
Ere, on the bright air, thou hadst heard the breeze
Pour its full tide of song?

Another thing with thee—
Are there not gorgeous cities in the deep,
Buried with flashing gems that darkly sleep,
Hid by the mighty sea?

And say, oh lone sea-shell,
Are there not costly things, and sweet purfumes
Scattered in waste o'er that sea gulf of tombs?
Hush thy low moan and tell.

But yet, more than all—
Has not each foaming wave in fury tost
O'er earth's most beautiful, the brave, the lost,
Like a dark funeral pall?

'Tis vain—thou answerest not!
Thou hast no voice to whisper of the dead—
'Tis ours alone, with sighs like odors shed,
To hold them unforgot!

Thine is as sad a strain,
As if the spirit in thy hidden cell
Pined to be with the many things that dwell
In the wild restless main.

And yet, there is no sound
Upon the waters, whispered by the waves,
But seemeth like a wail from many graves,
Thrilling the air around.

The earth, oh moaning shell!
The earth hath melodies more sweet than these,
The music-gush of rills, the hum of bees,
Heard in each blossom's bell.

Are not these tones of earth,
The rustling foliage with its shivering leaves,
Sweeter than sounds that e'en in moonlight eves,
Upon the seas have birth?

Alas! thou still wilt moan—
Thou'rt like the heart that wastes itself in sighs
E'en when amid bewildering melodies,
If parted from its own.

AMELIA.

METEOROLOGICAL OBSERVATIONS FOR THE MONTH OF JULY, 1837.

Made at the U. S. Naval Hospital, N. Y. Station. Com. C. G. Ridgely, Commander; Wm. Turk, Surgeon. Long. 74° W. Lat. 40° 42′ N. Var. 4° 26′ W.

Moon	Day of the Mth	Day of the Wk.	Thermometer ☉ R	Thermometer Noon	Thermometer ☉ S	Barometer ☉ R	Barometer Noon	Barometer ☉ S	Wind Direction ☉ R.	Wind Direction Noon.	Wind Direction ☉ S.	Wind Force ☉ R.	Wind Force Noon.	Wind Force ☉ S.	Weather ☉ R.	Weather Noon.	Weather ☉ S.	Rain Q'nt'ty	Remarks
	1	S.	72	85	72	29.72	29.72	29.72	S. W.	S. by W.	N. by W.	light	light	light	cloudy	fair	fair		Situation of instruments unchanged.
●	2	C.	70	73	68	29.82	29.90	29.90	N. W.	N.	N. W.	mod.	light	light	fair	fair	fair		July 1. Thunder shower in the afternoon.
	3	M.	64	66	67	29.87	29.77	29.68	S. W.	S. S. E.	W. N. W.	light	light	light	fair	fair	fair		3. Rain in the morning, thunder shower in the afternoon.
	4	T.	62	74	71	29.77	29.77	29.76	N. W.	N. W.	W.	light	mod.	light	fair	rain	cloudy		5. Showers all day.
	5	W.	64	79	64	29.76	29.63	29.53	S. W.	S. W.	N. E.	light	light	light	fair	fair	fair		6. do. in the morning.
	6	T.	62	72	68	29.58	29.67	29.69	N. E.	W.	S. S. E.	light	light	light	cloudy	cloudy	cloudy		7. do. do.
	7	F.	66	71	68	29.80	29.85	29.82	N. W.	S. W.	S. W.	light	light	light	cloudy	foggy	cloudy		11. do. do. Th. show. at s. s.
	8	S.	64	75	69	29.82	29.81	29.81	S. W.	S. W.	S. W.	light	light	light	cloudy	cloudy	cloudy		12. Showers in the morning.
	9	C.	64	74	68	30.01	30.04	29.99	N. W.	N. W.	N. W.	light	mod.	mod.	cloudy	cloudy	fair		16. Thunder storm at 6 P. M.
◑	10	M.	57	75	70	30.03	29.98	29.90	N. W.	S. W.	S.	light	light	light	fair	fair	fair		19. Showers in the afternoon.
	11	T.	61	72	65	29.87	29.86	29.78	S. S. W.	S. S. W.	N.	light	light	light	fair	fair	fair		23. Rain in the morning.
	12	W.	61	69	66	29.84	29.90	29.97	N.	N. E.	N. E.	mod.	mod.	light	cloudy	fair	rain		24. Thunder storm this afternoon, with a very high wind.
	13	T.	55	72	64	30.08	30.05	29.95	N. N. E.	S. W.	S. E.	light	light	light	fair	fair	fair		28. Rain in the night.
	14	F.	62	78	73	29.91	29.82	29.74	S. W.	S. W.	S. W.	light	mod.	mod.	fair	fair	fair		Fair days, 12. Rain on 12. Electrical phenomena on 5. Prevailing wind, southerly
	15	S.	64	82	70	29.68	29.64	29.68	S. W.	S.	S. W.	light	mod.	mod.	fair	fair	cloudy		Quantity of rain, 2.70 inches.
☽	16	C.	62	73	70	29.72	29.88	29.94	N. W.	N.	S.	mod.	light	light	fair	fair	rain		
	17	M.	63	76	70	30.13	30.16	30.14	N.	S. E.	S. S. E.	light	light	light	fair	fair	fair		
	18	T.	63	76	70	30.15	30.14	30.04	S. W.	S. W.	S. W.	light	mod.	light	fair	fair	fair		
	19	W.	68	82	70	29.98	29.92	29.81	S.	S. E.	S.	light	light	light	cloudy	cloudy	cloudy		
	20	T.	70	78	74	29.83	29.87	29.87	N. N. W.	N.	S. W.	mod.	light	light	fair	fair	fair		
	21	F.	66	76	73	29.94	29.96	29.93	N.	W.	W. N. W.	light	light	light	fair	fair	fair		
	22	S.	68	76	70	30.01	30.00	29.94	N. W.	S. W.	S. S. E.	light	light	light	fair	fair	cloudy		
	23	C.	66	80	71	29.88	29.85	29.75	S. E.	S. E.	S. E.	light	light	light	cloudy	cloudy	fair		
◐	24	M.	69	82	71	29.68	29.63	29.57	S.	W. S. W.	N. W.	light	light	light	cloudy	fair	fair		
	25	T.	66	72	68	29.67	29.68	29.67	W. by N.	W.	W. N. W.	mod.	mod.	light	fair	cloudy	fair		
	26	W.	60	77	64	29.67	29.64	29.63	S. W.	W.	W.	mod.	mod.	light	fair	cloudy	cloudy		
	27	T.	58	74	73	29.63	29.66	29.70	W. N. W.	N. W.	W. by N.	light	light	light	fair	fair	fair		
	28	F.	68	76	76	29.80	29.83	29.80	N. W.	W. S. W.	W. S. W.	light	light	light	fair	fair	fair		
	29	S.	66	78	71	29.81	29.81	29.86	S. W.	N. by W.	E.	light	mod.	light	cloudy	fair	fair		
	30	C.	62	78	68	29.94	29.95	29.93	E.	S. by E.	S. E.	light	light	light	cloudy	cloudy	cloudy		
	31	M.	70	82	75	29.87	29.86	29.86	S. E.	W.	N. W.	light	light	light	cloudy	cloudy	fair		

RESULT.

THERMOMETER.

Mean temperature for the month	69°
Highest ditto on the 1st at mer.	85
Lowest ditto on the 13th at S. R.	55
Greatest daily variations, on the 10th and 15th.	18
Least ditto, on the 31	3
Range	30

BAROMETER. Inches.

Mean atmospheric pressure for the month	29.838
Highest ditto, on the 17th, at M.	30.160
Lowest ditto, on the 5th, at S. S.	29.530
Greatest daily variation, on the 14th	170
Least do., on the 1st	00
Range	630

METEOROLOGICAL OBSERVATIONS FOR THE MONTH OF SEPTEMBER, 1837.

Made at the U. S. Naval Hospital, N. Y. Station. Com. C. G. Ridgely, Commander; Wm. Turk, Surgeon. Lon. 74° W. Lat. 40° 42′ N. Var. 4° 26′ W.

Moon	Mth.	Week	Day of the	Thermometer ☼ R	Thermometer Noon	Thermometer ☼ S	Barometer ☼ R.	Barometer Noon	Barometer ☼ S.	Wind Direction ☼ R.	Wind Direction Noon	Wind Direction ☼ S.	Wind Force ☼ R.	Wind Force Noon	Wind Force ☼ S	Weather ☼ R.	Weather Noon	Weather ☼ S.	Rain Q'n'ty.
	1	F.	50	64	60	29.98	30.04	30.03	N. N. W.	S. W.	W.	mod.	light	light	fair	fair	clear		
	2	S.	51	65	56	30.03	29.96	29.89	N. E.	N. E.	N. N. E.	light	light	light	cloudy	cloudy	fair		
	3	B.	55	57	62	30.00	30.10	30.17	S. W.	N. W.	N. W.	light	light	light	fair	fair	fair		
	4	M.	55	60	56	30.32	30.40	30.37	N.	N. N. E.	S. E.	light	light	light	fair	fair	fair		
	5	T.	56	69	60	30.39	30.43	30.39	S.	S. E.	S.	light	light	light	fair	fair	fair		
	6	W.	54	68	60	30.41	30.42	30.35	S. W.	S. S. W.	S. S. E.	light	light	light	fair	fair	cloudy		
◐	7	T.	54	76	67	30.31	30.25	30.14	S. S. W.	S.	S. E.	light	light	light	fair	cloudy	cloudy		
	8	F.	62	72	76	30.04	30.06	30.04	S. E.	S. E.	E.	light	light	light	rain	cloudy	fair		
	9	S.	59	68	62	30.07	30.08	30.08	E. S. E.	S. W.	S. E.	light	light	light	fair	fair	cloudy		
	10	B.	64	76	69	30.04	30.03	29.94	E. S. E.	S. E.	S. E.	light	light	light	fair	cloudy	cloudy		
	11	M.	69	77	76	29.86	29.72	29.68	S. E.	S.	S.	light	light	light	cloudy	fair	cloudy		
	12	T.	60	68	58	29.76	29.77	29.84	N. W.	N. W.	N. W.	fresh	fresh	fresh	fair	fair	fair		
	13	W.	48	58	58	29.96	30.01	30.00	N. W.	N. W.	N. E.	mod.	mod.	light	fair	fair	fair		
○	14	T.	50	62	60	30.11	30 14	30.12	N.	N. E.	S. E.	light	light	light	fair	fair	fair		
	15	F.	47	60	59	30.14	30.21	30.17	N. E.	N. by E.	N. E.	light	light	light	fair	fair	fair		
	16	S.	49	62	58	30.16	30.17	30.14	N. E.	N. E.	N. E.	mod.	mod.	light	cloudy	cloudy	fair		
	17	B.	50	67	64	30.08	30.06	29.98	N.	N. N. W.	S. E.	light	light	light	fair	fair	fair		
	18	M.	58	70	70	29.91	29.85	29.74	N. N. W.	W. S. W.	S. W.	light	light	light	cloudy	fair	fair		
	19	T.	58	64	59	29.95	29.97	30.02	N. W.	W. N. W.	N. W.	mod.	mod.	mod.	cloudy	fair	cloudy		
	20	W.	48	58	58	30.23	30.26	30.27	N. W.	N.	N.	mod.	mod.	light	fair	fair	fair		
◑	21	T.	46	64	58	30.37	30.41	30.31	N.	N. E.	N. E.	light	light	light	fair	cloudy	fair		
	22	F.	51	68	58	30.21	30.13	30.01	N. E.	N. E.	N. E.	light	light	light	fair	fair	cloudy		
	23	S.	48	58	56	30.03	30.10	30.20	N. W.	N. W.	N. W.	mod	fresh	mod.	fair	fair	fair		
	24	B.	48	55	54	30.36	30.38	30.32	N.	N.	S.	light	light	light	fair	fair	fair		
	25	M.	51	59	58	30.30	30.27	30.17	W. S. W.	W. S. W.	S.	mod.	mod.	mod.	fair	fair	fair		
	26	T.	51	68	64	30.06	29.96	29.97	S. W.	S. W.	S. W.	mod.	light	light	cloudy	fair	cloudy		
	27	W.	61	68	64	30.12	30.12	30.14	N. E.	N. E.	N. E.	light	light	light	cloudy	cloudy	cloudy		
●	28	T.	56	73	64	30.11	30.04	29.96	N. E.	S. E.	S.	light	light	light	cloudy	cloudy	rain		
	29	F.	64	71	59	29.93	29.96	30.01	S. W.	N. E.	N. E.	light	light	light	cloudy	fair	cloudy		
	30	S.	52	57	58	30.00	29.88	29.78	N. E.	N. E.	N. E.	light	mod.	light	rain	rain	rain		

REMARKS

THE INSTRUMENTS UNCHANGED.

Sept. 7. Rain in the night.
10. Slight showers this morning, and afternoon.
11. Rain in the night.
22. Slight shower in the afternoon.
28. Slight showers.
30. Rain all day.

Fair days, 13. Rain on 7. Prevailing wind, N. E.

Quantity of rain, 1.84 inches.

RESULT.

THERMOMETER.

Mean temperature for the month	60
Highest on the 11th at M.	77
Lowest on the 21st at sunrise	46
Greatest daily variation on the 7th	22
Least do. on the 9th	5
Range	31

BAROMETER. Inches.

Mean atmospheric pressure for the month	30.09
Highest on the 5th at M.	30.43
Lowest on the 11th at sunset	29.68
Greatest daily variation on the 30th	.22
Least do. on the 4th	.01
Range	.75

NOTICE.

The Committee of Publication regret to announce the necessity of a temporary suspension in the publication of the Naval Magazine. Though the subscription list exhibits a catalogue of names amply sufficient for the support of the work, the arrearages in the payment of the subscriptions are such, as to render the discontinuance of it, for the present, imperative. The accompanying Number makes the second volume of the Magazine complete, and it is respectfully and earnestly requested of subscribers who have not yet paid their subscriptions, that they would transmit them without delay to G. W. Lee, Esq., Treasurer of the U. S. Naval Lyceum, Navy Yard, Brooklyn.

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